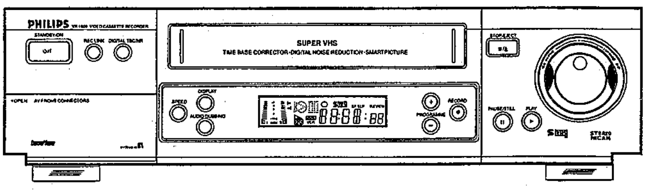
Video Cassette Recorder VR1000/02

Service
Service
Service



VR1000/02

Service Manual

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1 Disassembly
2 Mechanism adjustments
3 Electrical adjustments
4 Charts and diagrams
5 Parts lists

Specification:

Video & Hi Fi recording:	Rotary six-head helical scan system (2 audio heads)
Antenna input Signal:	PAL BG, DK.
Antenna:	VHF/UHF 75Ω external antenna terminal
VHF Output Signal:	UHF CH36 (Adjusted between CH22 - CH69) 75Ω unbalanced
Power requirement:	AC 220V – 240V
Power consumption:	22W
Operating temperature:	+5°C to +40°C
Relative humidity:	10% to 80%
Weight:	4.6 kg
Dimensions:	435 x 94 x 343mm

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

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PHILIPS

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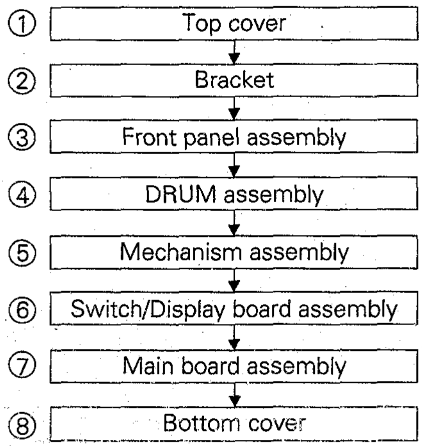
SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4),9(L1),WR1, WR2, *CN3012, CN7192, JACK BOARD ASSY	<NOTE 1> <NOTE 2>

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Identification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4),9(L1),WR1, WR2, *CN3012, CN7192, JACK BOARD ASSY	<NOTE 1> <NOTE 2>
④	DRUM ASSEMBLY	D4	3(S5),WR3,WR4, *CN1,(L2),4(L3), (L4),(P1), INERTIA PLATE, ROLLER ARM ASSY, CLEANING BRUSH ASSY	<NOTE 2>
⑤	MECHANISM ASSEMBLY	D5	2(S6),2(S7),WR5 2(L5),*CN1	<NOTE 2> <NOTE 3>
⑥	SWITCH/DISPLAY BOARD ASSEMBLY	D6	7(L6),(L7),WR6,WR7, *CN7191,CN7001, REC SAFETY BOARD ASSY	<NOTE 4>
⑦	MAIN BOARD ASSEMBLY	D7	2(S8), (S9), (S10)	
⑧	BOTTOM COVER	D8	2(S11),4(L8), 7(L9),4(L10), FOOT ASSY, FOOT(REAR)	

<NOTE1>
- When reattaching the Front panel assembly, make sure that the door opener ⓐ of the Cassette holder assembly is lowered in position prior to the reinstallation.

<NOTE2>
- When inserting the flat wire into the connector, be careful not to make a mistake in the positioning of its electrodes.

<NOTE3>
- When it is required to remove the screws (S6) retaining the Mechanism assembly, please refer to the "Procedures for Lowering the Cassette holder assembly". (See on pages 1-3.)
- When removing the Mechanism assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Mechanism assembly.
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors on the Main board assembly (D3001: LED, Q3002: Start sensor, Q3003: End sensor, S3002 : S cassette switch).

<NOTE4>
- The REC safety board assembly is attached to the Switch/Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Switch/Display board assembly.
- When inserting the flat wire into the connector, be careful not to make a mistake in the positioning of its electrodes.

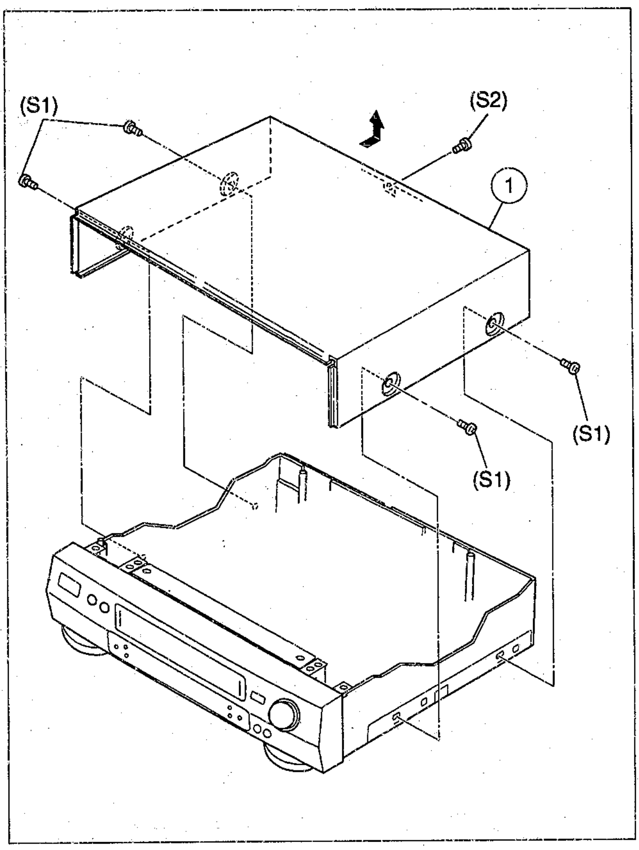


Fig. D1

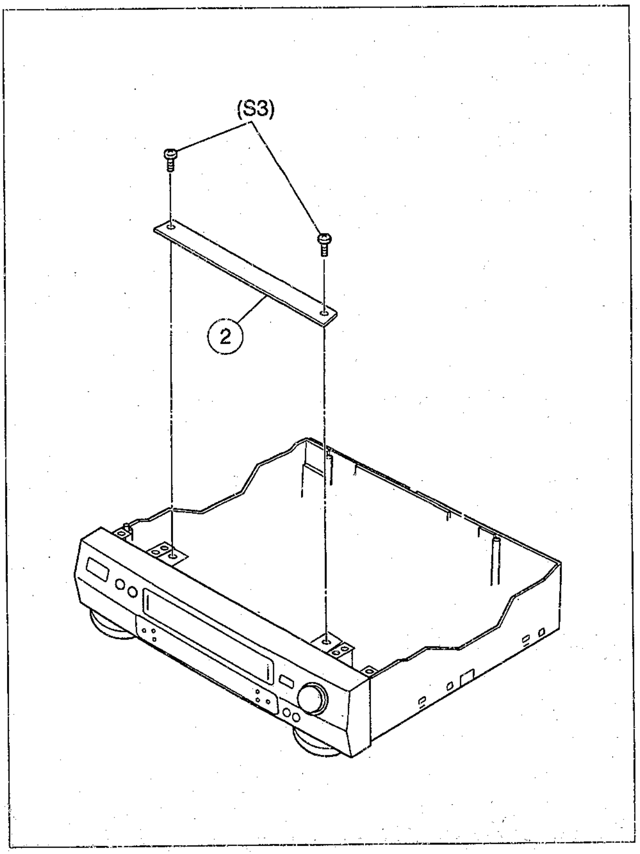


Fig. D2

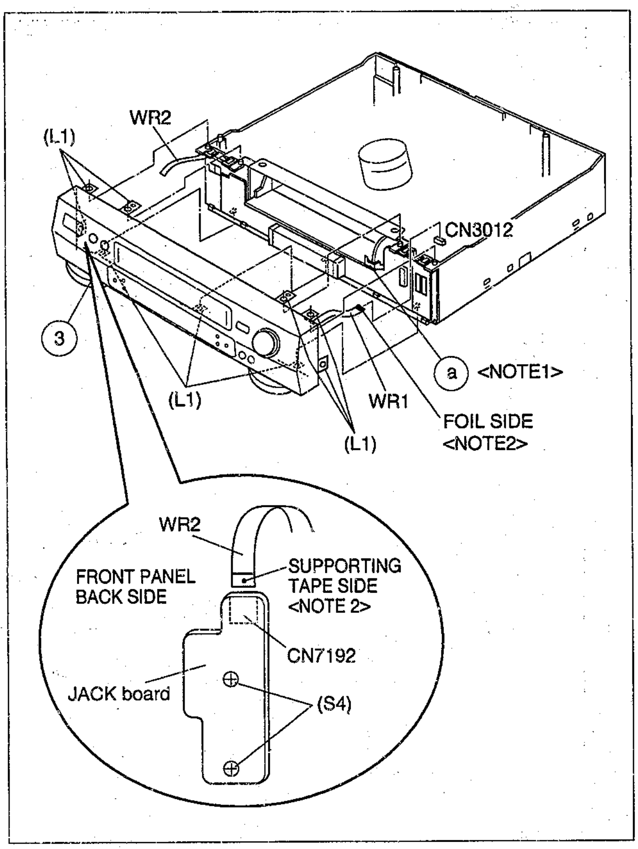

WR2
(L1)
CN3012
3
a <NOTE1>
(L1)
WR1
FOIL SIDE <NOTE2>
(L1)
WR2
FRONT PANEL BACK SIDE
SUPPORTING TAPE SIDE <NOTE 2>
CN7192
JACK board
(S4)

Fig. D3

NOTE: When installing the DRUM assembly, secure the screw (S5) in the order of A. B. C.

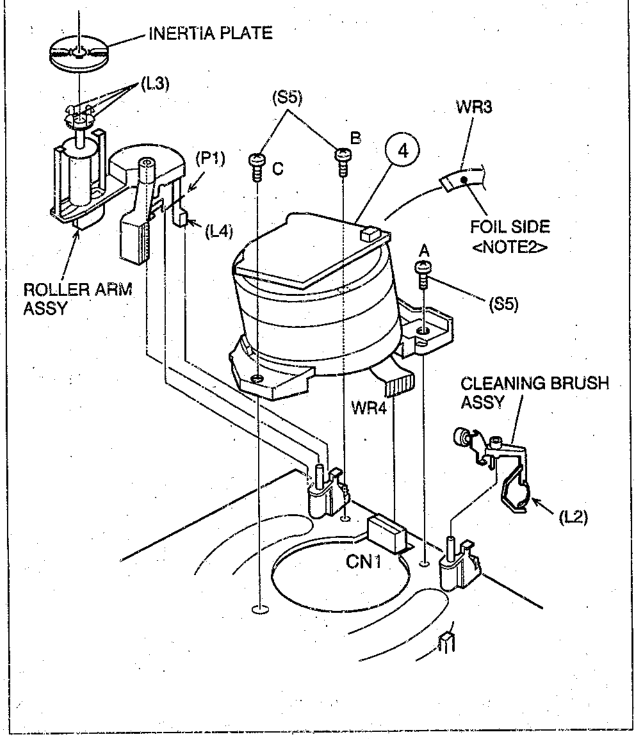

INERTIA PLATE
(L3)
(S5)
WR3
B
4
(P1)
C
(L4)
FOIL SIDE <NOTE2>
A
ROLLER ARM ASSY
(S5)
CLEANING BRUSH ASSY
WR4
(L2)
CN1

Fig. D4

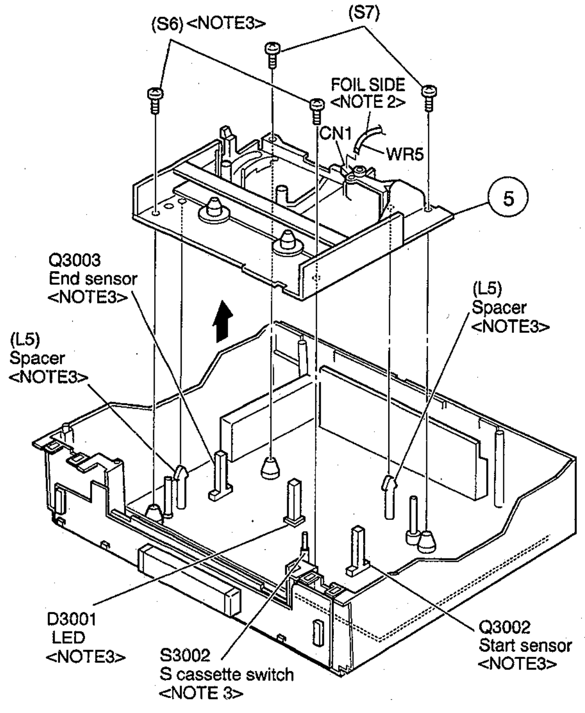

(S6) <NOTE3>
(S7)
FOIL SIDE
<NOTE 2>
CN1
WR5
5
Q3003
End sensor
<NOTE3>
(L5)
Spacer
<NOTE3>
(L5)
Spacer
<NOTE3>
D3001
LED
<NOTE3>
S3002
S cassette switch
<NOTE 3>
Q3002
Start sensor
<NOTE3>

Fig. D5

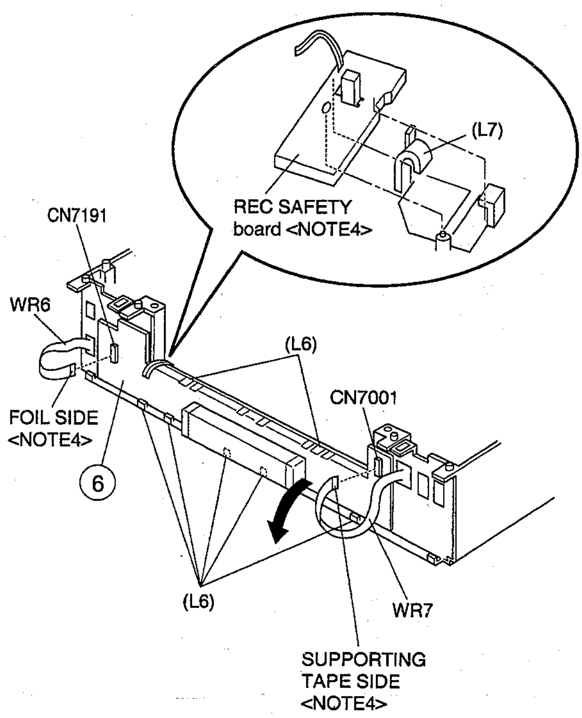

(L7)
CN7191
REC SAFETY
board <NOTE4>
WR6
(L6)
CN7001
FOIL SIDE
<NOTE4>
6
(L6)
WR7
SUPPORTING
TAPE SIDE
<NOTE4>

Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two screws unscrewed when removing the Main deck assembly.

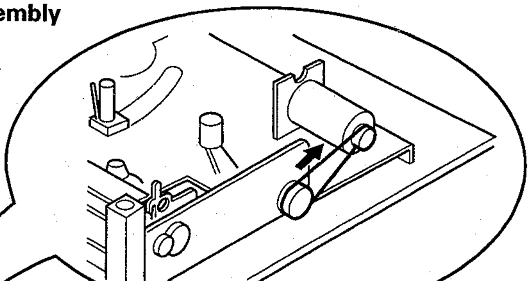


Fig. 2

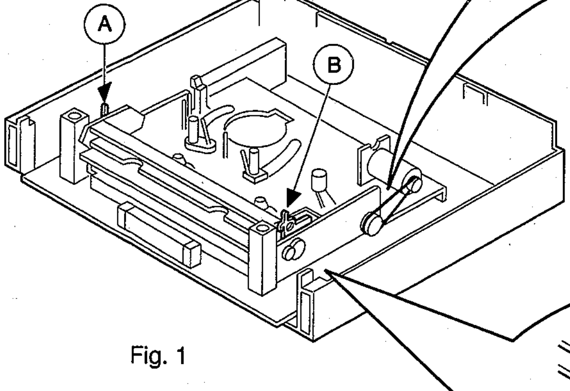


Fig. 1

Turn the loading motor pulley in the direction as indicated by Fig.2. As bothⒶandⒷlevers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of Ⓐ,Ⓑ,Ⓑ,Ⓐ. When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

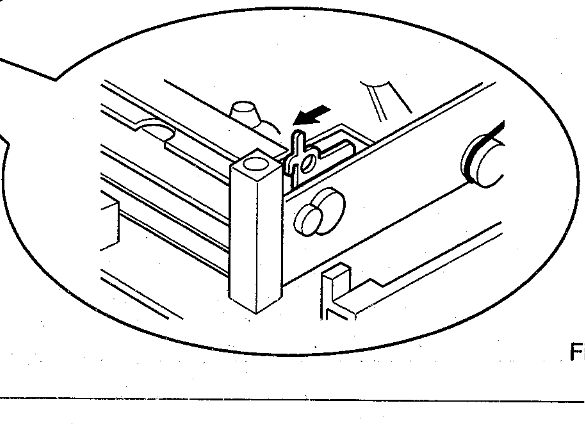


Fig. 3

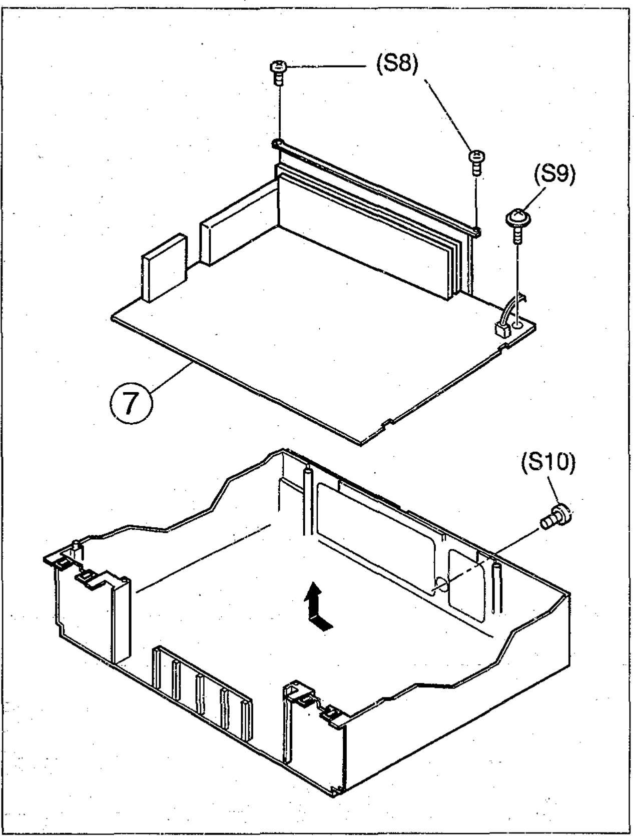


Fig. D7

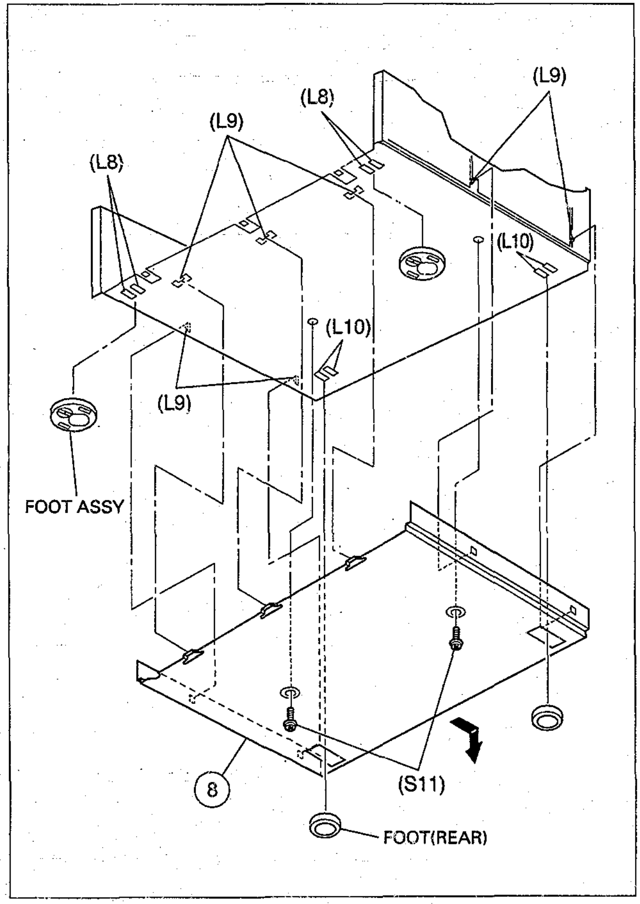


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Mechanism assembly, this unit is constructed so as to allow the Mechanism and Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

(1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D4) from CN1.)

(2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Mechanism assembly. (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)

(3) Take out 2 screws Ⓐ and 2 screws Ⓑ as shown in Fig. 1-4-1.

(4) Remove the flat wires from CN3011 and CN7504 on the Main board assembly.

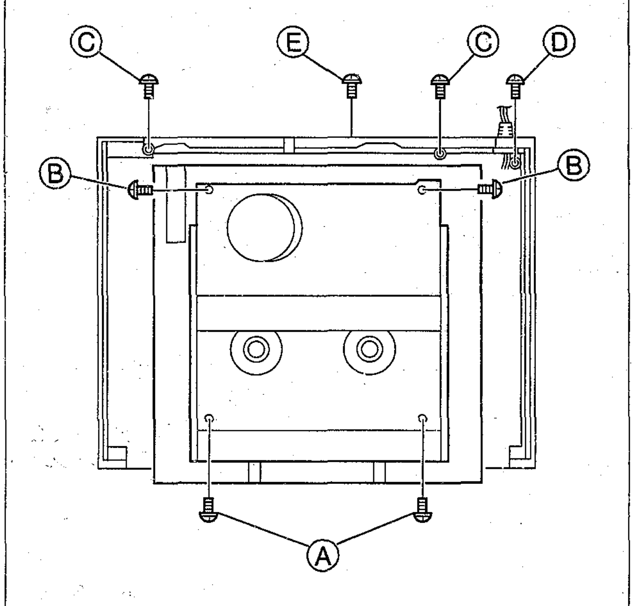


Fig. 1-4-1

(5) Take out 2 screws Ⓒ, 1 screw Ⓓ and 1 screw Ⓔ as shown in Fig. 1-4-1.

(6) Remove the Main board and Mechanism assemblies together while holding the edge of the Main board assembly. At this stage be careful of the power cord and prongs of the jacks on the back side. (See Fig. 1-4-2.)

(7) Remove the Switch/Display board assembly and REC safety board assembly. (Refer to page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the flat wires (Fig. D6) from CN7001 and CN7191.)

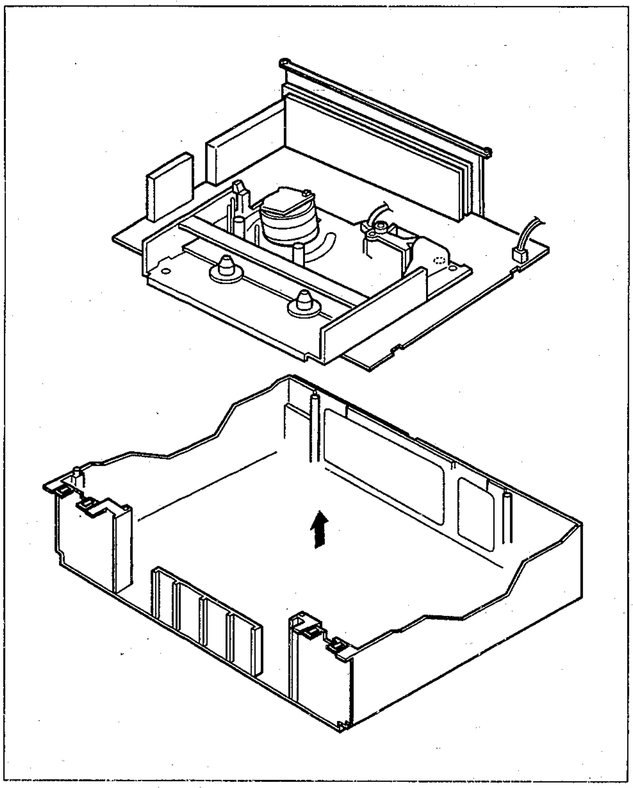


Fig. 1-4-2

(8) Place the Switch/Display board assembly, REC safety board assembly and Jack board assembly on the front side of the Mechanism and Main board assemblies which was removed at the step (6), then connect the flat wires into CN3011 and CN7504 of the Main board assembly and CN7192 of the Jack board assembly. (Refer to Fig. 1-4-3.)

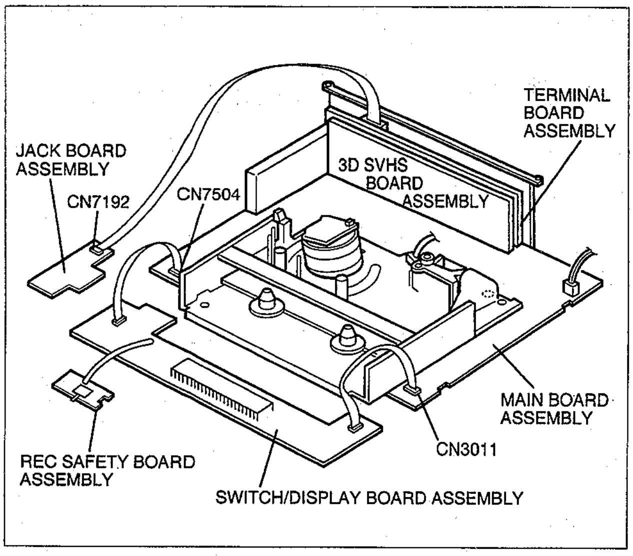


Fig. 1-4-3

(9) Connect the power cord to the isolation transformer and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

Note: *When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Mechanism assemblies.*

If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION"(See Fig. 1-4-3).

(1) Insert a cassette halfway in the Cassette holder assembly.
(2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
(3) As soon as the cassette starts to be loaded, set the switch on the REC safety board assembly to OFF (by releasing the switch).
(4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:
- *When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).*
- *When performing fast-forward and rewind, be sure to turn the set to the normal position.*
- *In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.*

(5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Connect TPGND and TP7001(TEST) on the Switch/Display board assembly with a jump wire.
(3) Connect VCR to AC.
(4) Press the POWER button.
(5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

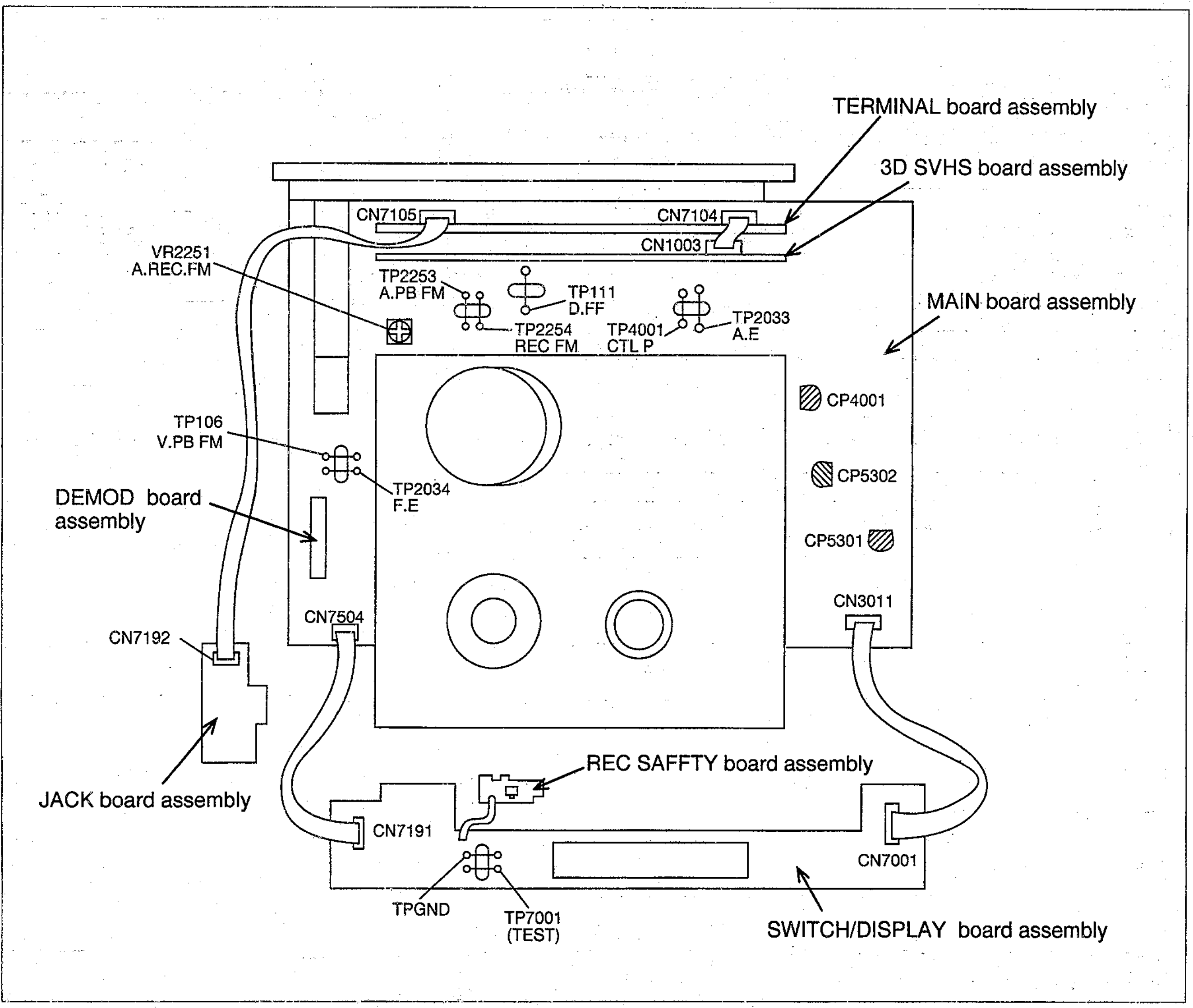

TERMINAL board assembly
3D SVHS board assembly
CN7105
CN7104
CN1003
VR2251
A.REC.FM
TP2253
A.PB FM
TP111
D.FF
TP2254
REC FM
TP4001
CTL P
TP2033
A.E
MAIN board assembly
CP4001
CP5302
CP5301
TP106
V.PB FM
TP2034
F.E
DEMOD board assembly
CN3011
CN7504
CN7192
REC SAFFTY board assembly
JACK board assembly
CN7191
CN7001
TPGND
TP7001
(TEST)
SWITCH/DISPLAY board assembly

Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.6.1 How to display record of an emergency faults

(1) Press the "A" button first then the "N" button of the presetting unit, and the two previous emergency faults are shown in the FDP.
(2) Press the "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03

03 — Emergency fault before last
01 — Emergency fault of the last time

[Example] E : — — : — — ← No record of emergency

1.6.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	SU/TU REEL FG input is absent (for more than 4 Sec).	REC/PLAY/FF/REW/ SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	D FF input is absent (for more than 3 Sec).	REC/PLAY SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 06	CAPSTAN FG input is absent (for more than 4 Sec).	REC/PLAY/FF/REW/ SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-6-1 EMERGENCY FAULTS

1.6.3 How to clear emergency record

Press the CLEAR button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL(+)	IN/OUT	CTL(+) SIGNAL
2	SVSS	-	GND
3	CTL(-)	IN/OUT	CTL(-) SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFB	IN	CTL PULSE FEEDBACK
6	CTLAMPOUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE INPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVCC	-	SYSTEM POWER
10	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
11	NORM/MESEC/S	IN	SVHS MODE:H
12	SECAM DET/KILLER OUT	-	NC
13	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
14	START SENSOR	IN	START SENSOR
15	END SENSOR	IN	END SENSOR
16	IND(L)	IN	AUDIO INPUT (LCH) FOR THE FDP AUDIO INDICATOR
17	DD ABS	-	NC
18	SCR ID	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
19	IND(R)	IN	AUDIO INPUT (RCH) FOR THE FDP AUDIO INDICATOR
20	BS ANT/AFC	IN	TUNING CLOCK
21	LED/RF AGC	-	NC
22	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	CTL GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
25	LSA	IN	MECHANISM MODE DETECT(A)
26	LSB	IN	MECHANISM MODE DETECT(B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
29	RC	IN	REMOTE CONTROL DATA INPUT
30	R.PAUSE/COMPU IN	-	NC
31	P50 IN	IN	CONTROL SIGNAL FOR TV LINK
32	LMC3	OUT	LOADING MOTOR DRIVE(3)
33	P50 OUT/COMPU OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
35	LMC1	OUT	LOADING MOTOR DRIVE(1)
36	LMC2	OUT	LOADING MOTOR DRIVE(2)
37	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
38	SB G(PWM)	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
39	STB/TEST	OUT	STROBE SIGNAL (FOR FDP DRIVER)
40	POWER DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
41	REC SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
42	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
43	VSS	-	GND
44	TRICK(H)	OUT	SPECIAL PLAYBACK:H
45	VCC	-	SYSTEM POWER
46	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL (REC:H)
47	3.58NTSC	-	NC
48	SUB CLK	-	NC
49	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR THE ON-SCREEN IC
50	I2C CLK	OUT	SERIAL DATA TRANSFER CLOCK FOR THE ON-SCREEN IC
51	S.DATA TOSYS	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO THE FDP DRIVER
52	S.DATA FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
53	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
54	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
56	LOCK(L)	IN	TUNING PLL LOCK DETECT: L

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	FUNCTION
57	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
58	JUST CLK/CCIR(H)	OUT	NC/EXCEPT FOR NTSC:L
59	SW1	OUT	TUNER "L" SYSTEM MODE:H
60	TU CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
61	TU DATA	OUT	TUNING DATA
62	FWE	-	NC
63	NMI(L)	-	NC
64	X2	-	TIMER CLOCK (32.768KHz)
65	X1	-	TIMER CLOCK (32.768KHz)
66	RES(L)	-	RESET TERMINAL (RESETON:L)
67	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
68	VSS	-	GND
69	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
70	VCC	-	SYSTEM POWER
71	MODE	-	NC
72	TU A MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
73	TU V MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
74	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
75	I2C CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	I2C DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	SW2	OUT	TUNER SYSTEM "L" MODE:L
78	FULL E ON(H)	OUT	FULL ERASE HEAD ON
79	CNR ON(H)	-	NC
80	V.P.CTL	OUT	V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK
81	ET REC(H)	-	NC
82	VCC	-	SYSTEM POWER
83	SLOW	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
84	VSS	-	GND
85	SP SHORT(H)	OUT	MODE SELECT
86	LP SHORT(H)	OUT	MODE SELECT
87	SP(H)/S PB(H)	-	NC
88	A.REC ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
89	SECAM(H)	-	NC
90	HEAD SEL	-	NC
91	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
92	SYNC DET(H)	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
93	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
94	JSB/STLB	IN	INPUT FOR THE JOG SHUTTLE
95	SHTL(L)/JOGA	IN	INPUT FOR THE JOG SHUTTLE
96	THROUGH(H)	-	NC
97	JSA/STLA	IN	INPUT FOR THE JOG SHUTTLE
98	C.SYNC	IN	COMPOSITE SYNC
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	SUB RESET/V.UP(H)	OUT	NC/HIGH SPEED FF/REW TURBO SEARCH:H
104	S.CASS(H)	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H)
105	PERI 1S	IN	INPUT FOR THE TERMINAL SLIDE SW POSI IN THE SAT MODE
106	LOCK(L)/P.SAVE(L)	OUT	NC/POWER SAVE:L
107	DPG	IN	DRUM PICKUP PULSE INPUT (SWITCHING PULSE)
108	DFG	IN	DRUM FG PULSE INPUT
109	VCC	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	VSS	-	GND
112	CTLREF	-	CTL REFERENCE VOLTAGE

Table 1-7-2 SYSCON CPU pin function(2/2)

SECTION 2
MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

(1) Unplug the power cable of the main unit before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to damage the lugs, etc. during the repair work.
(5) When installing the front panel assembly, be sure to hook the lug on the back side of the cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE.)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(2) Unload the cassette by manually turning the loading motor of the mechanism assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1.)
(3) Bring the pole base assembly (supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
(4) Move the top guide toward the drum while holding down the lug Ⓐ of the bracket retaining the top guide. Likewise hold part Ⓑ down and remove the top guide. Section Ⓒ of the top guide is then brought under the cassette lid. Then remove the top guide by pressing the whole cassette tape down. (See Fig.2-1-2.)
(5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

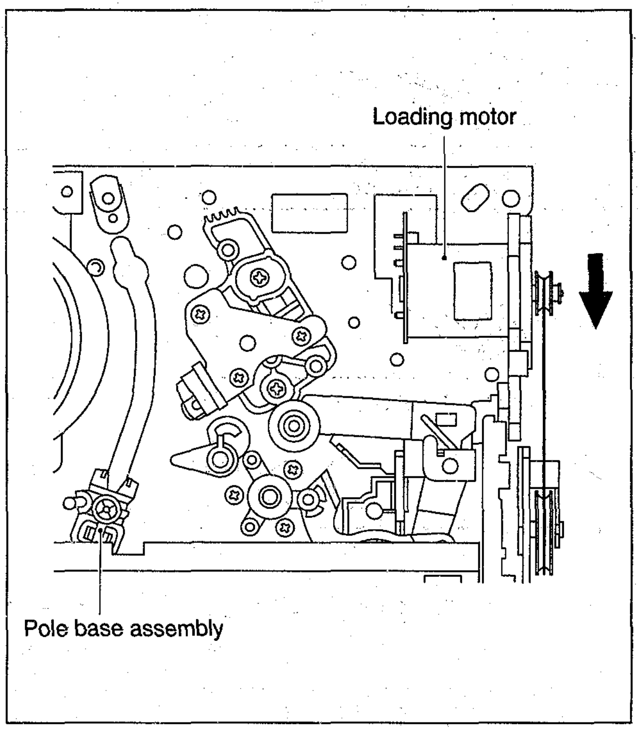


Fig. 2-1-1

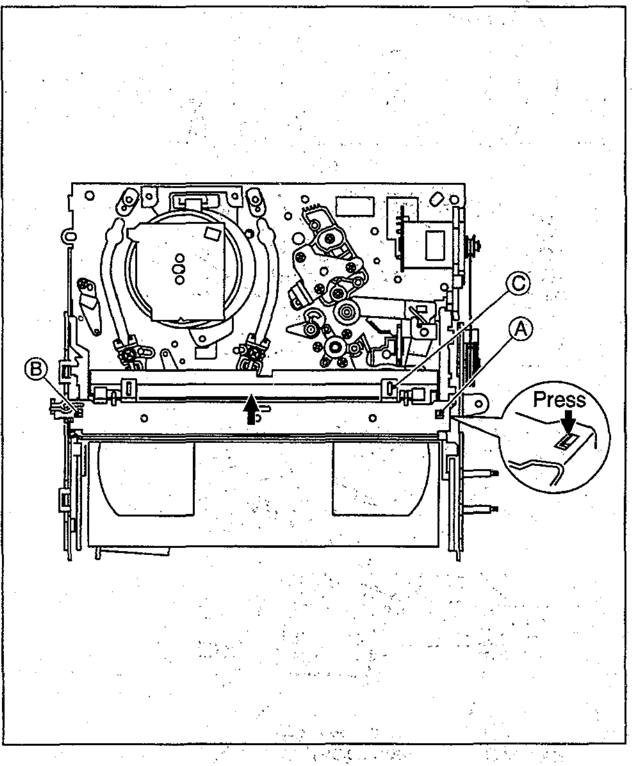


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, front panel assembly and others so that the mechanism assembly is visible. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD.)

(2) While keeping the tension arm assembly of the mechanism assembly free from tension, pull the tape on the pole base assembly (supply or take-up side) out of the guide roller. (See Fig.2-1-3.)

(3) Take the spring of the pinch roller arm assembly off the hook of the press lever assembly, and detach it from the tape. (See Fig.2-1-4.)

(4) In the same way as in the electrical failure instructions in 2.1.3 (4), remove the top guide.

(5) Raise the cassette tape cover. By keeping it in that position, draw out the cassette tape case from the cassette holder and take out the tape.

(6) By hanging the pinch roller arm assembly spring back on the hook, take up the slack of the tape into the cassette.

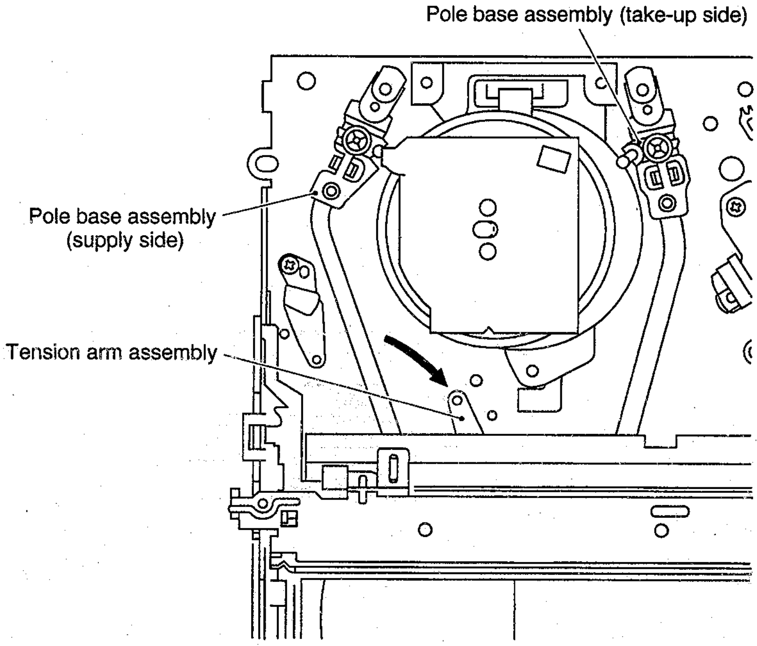

Pole base assembly (take-up side)
Pole base assembly (supply side)
Tension arm assembly

Fig. 2-1-3

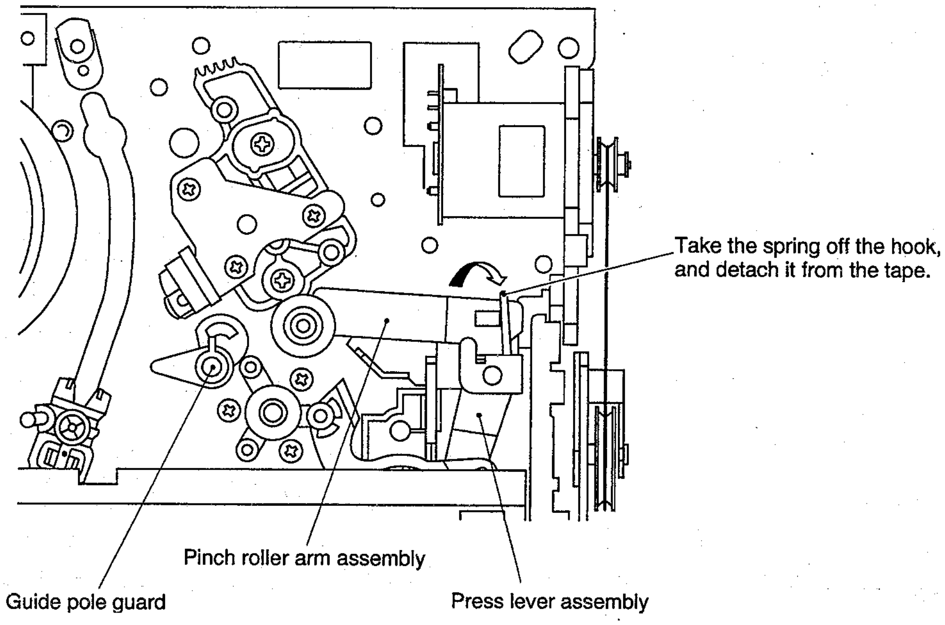

Take the spring off the hook, and detach it from the tape.
Pinch roller arm assembly
Guide pole guard
Press lever assembly

Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

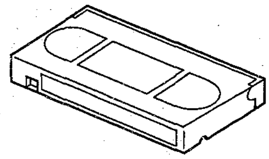
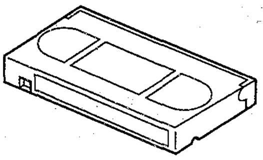
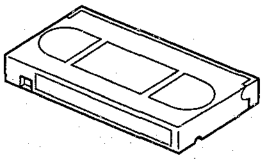
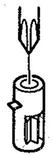
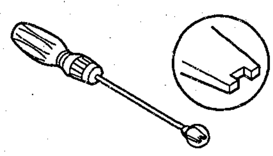
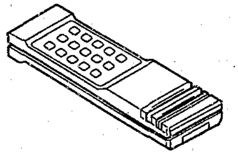
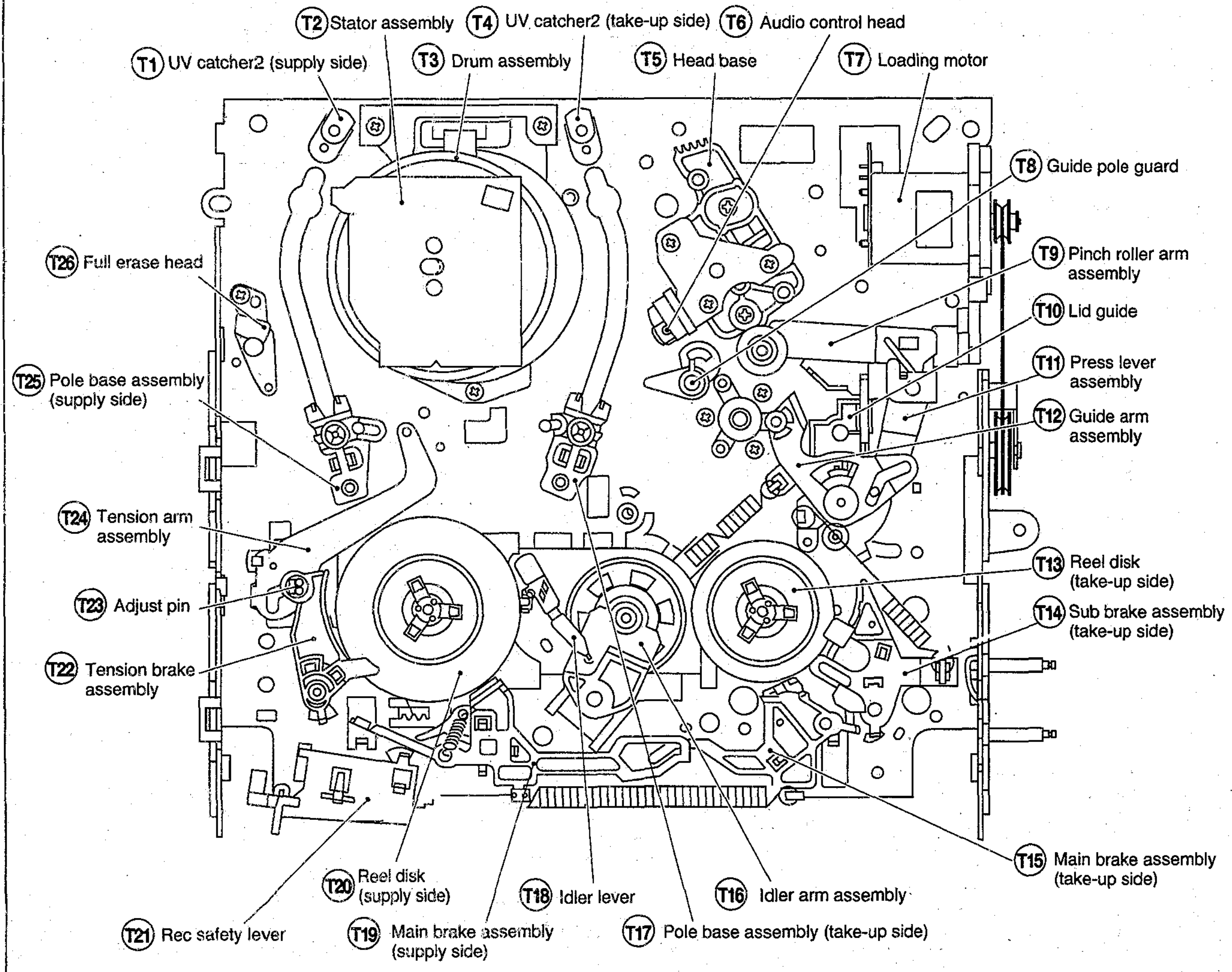
Alignment tape (SP) 4822 397 30262	Alignment tape (LP) 4822 397 30261	Back tension cassette gauge 4822 395 90615	A/C head position bit 4822 395 90916
			
Roller driver 4822 395 90904	Presetting unit 4822 395 90915		
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts



T1 UV catcher2 (supply side)
T2 Stator assembly
T3 Drum assembly
T4 UV catcher2 (take-up side)
T5 Head base
T6 Audio control head
T7 Loading motor
T8 Guide pole guard
T9 Pinch roller arm assembly
T10 Lid guide
T11 Press lever assembly
T12 Guide arm assembly
T13 Reel disk (take-up side)
T14 Sub brake assembly (take-up side)
T15 Main brake assembly (take-up side)
T16 Idler arm assembly
T17 Pole base assembly (take-up side)
T18 Idler lever
T19 Main brake assembly (supply side)
T20 Reel disk (supply side)
T21 Rec safety lever
T22 Tension brake assembly
T23 Adjust pin
T24 Tension arm assembly
T25 Pole base assembly (supply side)
T26 Full erase head

Fig. 2-1-5 Mechanism assembly top side

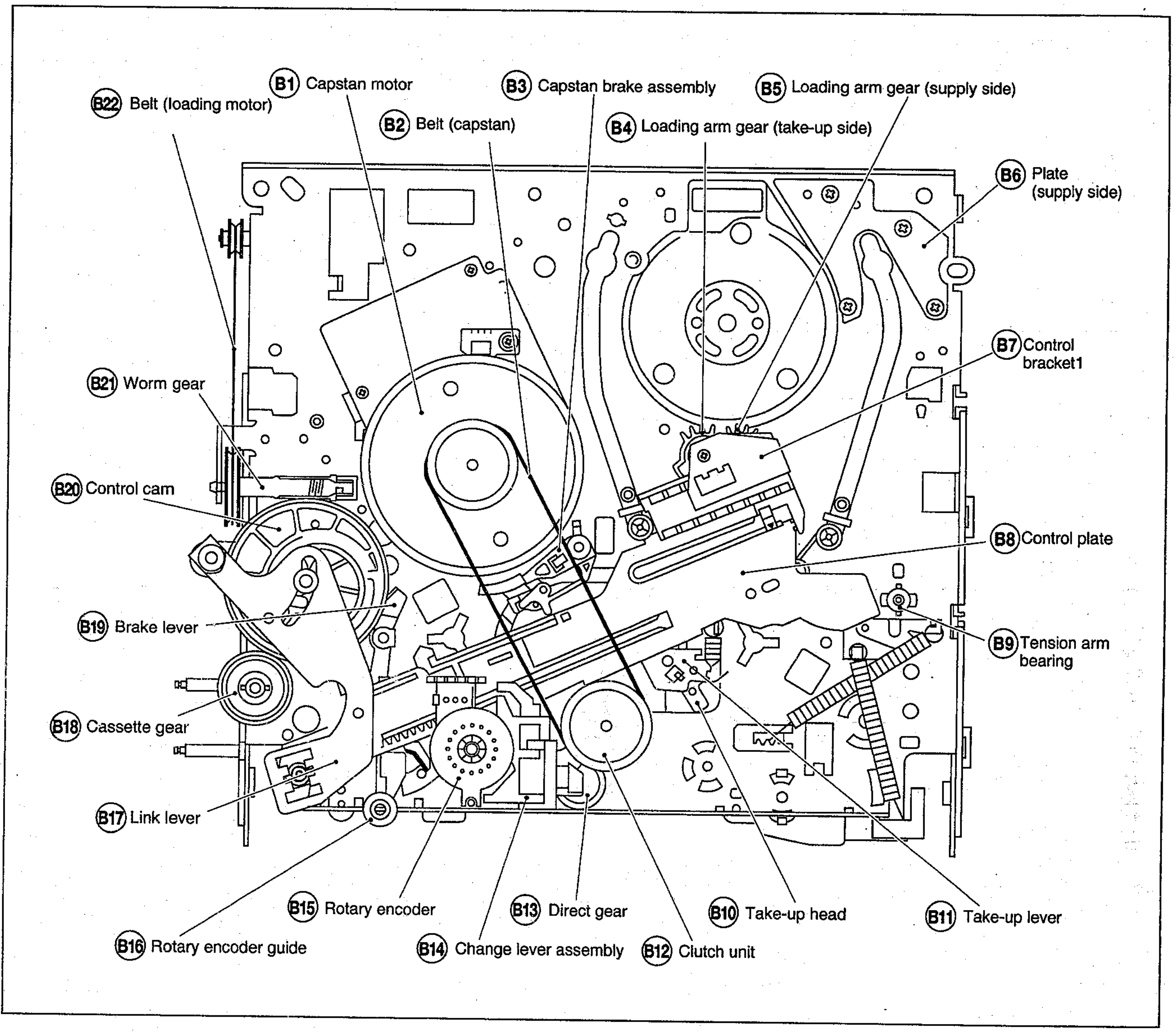

B22 Belt (loading motor)
B1 Capstan motor
B2 Belt (capstan)
B3 Capstan brake assembly
B4 Loading arm gear (take-up side)
B5 Loading arm gear (supply side)
B6 Plate (supply side)
B7 Control bracket1
B8 Control plate
B9 Tension arm bearing
B21 Worm gear
B20 Control cam
B19 Brake lever
B18 Cassette gear
B17 Link lever
B16 Rotary encoder guide
B15 Rotary encoder
B14 Change lever assembly
B13 Direct gear
B12 Clutch unit
B10 Take-up head
B11 Take-up lever

Fig. 2-1-6 Mechanism assembly bottom side

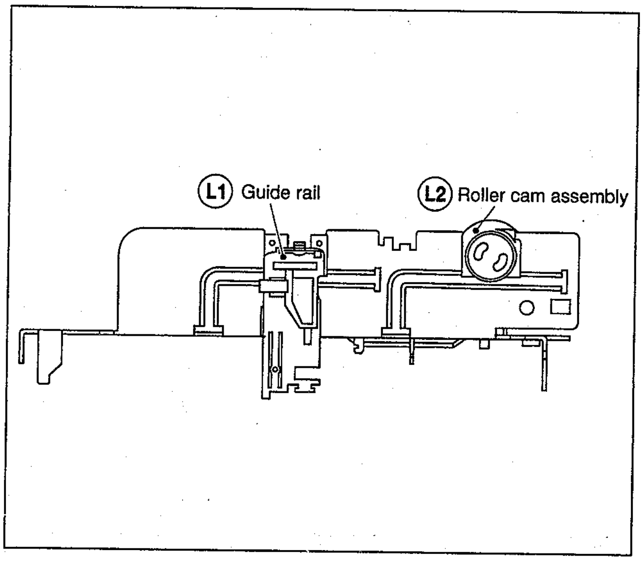

L1 Guide rail
L2 Roller cam assembly

Fig. 2-1-7 Mechanism assembly left side

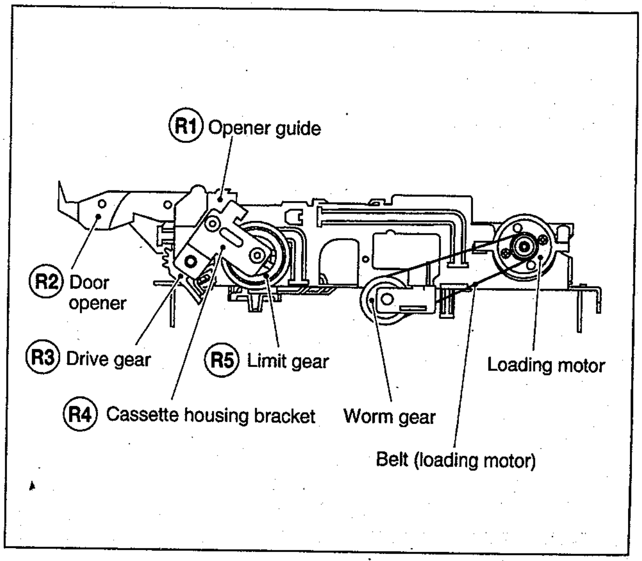

R1 Opener guide
R2 Door opener
R3 Drive gear
R5 Limit gear
Loading motor
R4 Cassette housing bracket
Worm gear
Belt (loading motor)

Fig. 2-1-8 Mechanism assembly right side

Note: *This table shows the order in which parts are removed for replacement. To replace parts, remove them in the order of 1 to 18 as shown in the table. To install them, reverse the removal sequence.*
The circled numbers (symbols and numbers) preceding the individual part names represent the numbers in the "Location of major mechanical parts" table. Also, the "T", "B", and "T/B" on the right of each part name shows that the particular part is removed from the front, from the back, and from both sides of the mechanism, respectively.

	Symbols and numbers			(L1)	(L2)	(R4)	(R1)	—	—	(R3)	—	(T9)	(T12)	(T11)	(T1),(T4)	(B15)	(B12)	(B14)	(B13)	(B17)	(B21)	(B7)	(B8)	(B5)	(B4)	(B11)	(T14)	(T15)	(T13)	(T22)	(T24)	(T18)	(B19)
Symbols and numbers	Removal parts (Reference items) Replacement parts	Front (T)/Back (B) of mechanism	Number of removal steps	Guide rail	Roller cam assembly	Cassette housing bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Drive arm	Pinch roller arm assembly	Guide arm assembly	Press lever assembly	UV catcher2	Rotary encoder	Clutch unit	Change lever assembly	Direct gear	Link lever	Worm gear	Control bracket1	Control plate	Loading arm gear (supply side)	Loading arm gear (take-up side)	Take-up lever	Sub brake assembly (take-up side)	Main brake assembly (take-up side)	Reel disk (take-up side)	Tension brake assembly	Tension arm assembly	Idler lever	Brake lever
(L1)	2.2.3 Guide rail	T	1																														
(L2)	2.2.3 Roller cam assembly	T	1																														
(R4)	2.2.3 Cassette housing bracket	T	1																														
(R1)	2.2.3 Opener guide	T	2			1																											
(R2)	2.2.3 Door opener	T	3			1	2																										
—	2.2.3 Relay gear	T	3			1	2																										
(R5)	2.2.3 Limit gear	T	3			1	2																										
—	2.2.3 Cassette holder assembly	T	6	1	2	3	4	5																									
(R3)	2.2.3 Drive gear	T	4			1	2	3																									
—	2.2.3 Drive arm	T	8	1	2	3	4	5	6	7																							
(T9)	2.2.4 Pinch roller arm assembly	T	1																														
(T12)	2.2.5 Guide arm assembly	T	1																														
(T11)	2.2.5 Press lever assembly	T	3									1	2																				
(T6)	2.2.6 Audio control head	T	1																														
(T7)	2.2.7 Loading motor	T	1																														
(B1)	2.2.8 Capstan motor	T/B	1																														
(T1),(T4)	2.2.9 UV catcher2	T	1																														
(T17)	2.2.9 Pole base assembly (take-up side)	T/B	2												1																		
(T25)	2.2.9 Pole base assembly (supply side)	T/B	2												1																		
(B15)	2.2.10 Rotary encoder	B	1																														
(B12)	2.2.11 Clutch unit	B	1																														
(B14)	2.2.12 Change lever assembly	B	3													1	2																
(B13)	2.2.12 Direct gear	B	4													1	2	3															
—	2.2.12 Clutch gear1	B	5													1	2	3	4														
(B17)	2.2.13 Link lever	B	1																														
(B18)	2.2.14 Cassette gear	B	2																	1													
(B20)	2.2.14 Control cam	B	2																	1													
(B21)	2.2.14 Worm gear	B	1																														
(T10)	- Lid guide	T/B	5									1	2	3							4												
(B7)	2.2.15 Control bracket1	B	1																														
(B8)	2.2.15 Control plate	B	6													1	2	3		4		5											
(B5)	2.2.16 Loading arm gear (supply side)	B	7													1	2	3		4		5	6										
(B4)	2.2.16 Loading arm gear (take-up side)	B	8													1	2	3		4		5	6	7									
—	2.2.16 Loading arm gear shaft	B	9													1	2	3		4		5	6	7	8								
(B11)	2.2.17 Take-up lever	T/B	7													1	2	3		4		5	6										
(B10)	2.2.17 Take-up head	T/B	8													1	2	3		4		5	6			7							
—	2.2.17 Control plate guide	T/B	8													1	2	3		4		5	6			7							
(B3)	2.2.18 Capstan brake assembly	T/B	7													1	2	3		4		5	6										
(T14)	2.2.19 Sub brake assembly(take-up side)	T/B	15	1	2	3	4	5	6	7	8					9	10	11		12		13	14										
(T15)	2.2.20 Main brake assembly(take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15						
(T19)	2.2.20 Main brake assembly(supply side)	T/B	9	1	2	3	4	5	6	7	8																						
(T13)	2.2.20 Reel disk (take-up side)	T/B	16	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15						
(T22)	2.2.21 Tension brake assembly	T/B	9	1	2	3	4	5	6	7	8																						
(T20)	2.2.21 Reel disk (supply side)	T/B	10	1	2	3	4	5	6	7	8																			9			
(T24)	2.2.21 Tension arm assembly	T/B	10	1	2	3	4	5	6	7	8																			9			
(B9)	2.2.21 Tension arm bearing	T/B	10	1	2	3	4	5	6	7	8																			9			
(T18)	2.2.22 Idler lever	T/B	17	1	2	3	4	5	6	7	8					9	10	11		12		13	14							15	16		
(T16)	2.2.22 Idler arm assembly	T/B	18	1	2	3	4	5	6	7	8					9	10	11		12		13	14							15	16	17	
(B19)	- Brake lever	T/B	18	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15	16	17				
(B16)	- Rotary encoder guide	T/B	19	1	2	3	4	5	6	7	8					9	10	11		12		13	14				15	16	17				18

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

(1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	**Symbols on the disassembly diagrams**
Grease	AA
Oil	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	**Parts Name**	**Operation Hours**	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake assembly		○
	Main brake assembly		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear		○
	Control plate		○
Other	Brush	★○	★○
	Tension brake assembly	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling (Phase matching between mechanical parts)

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm gear, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as the drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.

(For information on phase matching of the mechanism, see the instructions on how to install individual parts.)

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the mechanism assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY.) Turn the worm gear toward the front so that the guide hole of the control cam is brought into alignment with the hole at the mechanism assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1.)

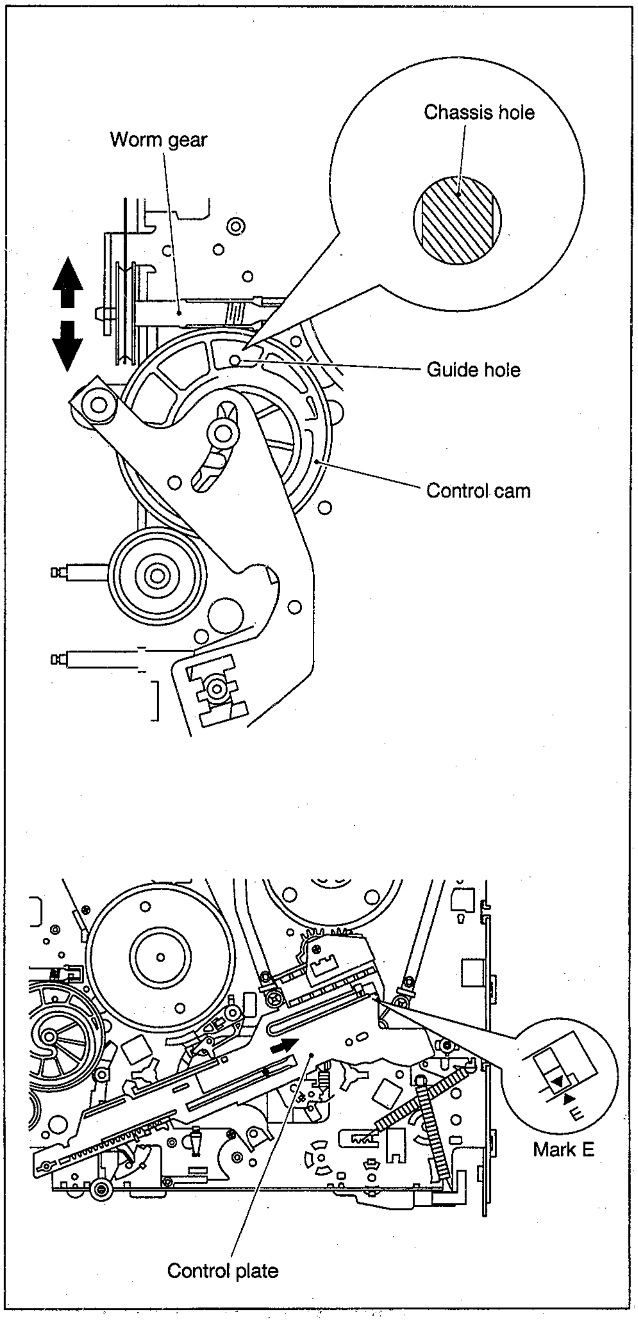

Chassis hole
Worm gear
Guide hole
Control cam
Mark E
E
Control plate

Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

(1) Remove the guide rail and roller cam assembly. (See Fig.2-2-2.)
(3 lugs on the guide rail and one lug on the roller cam assembly)

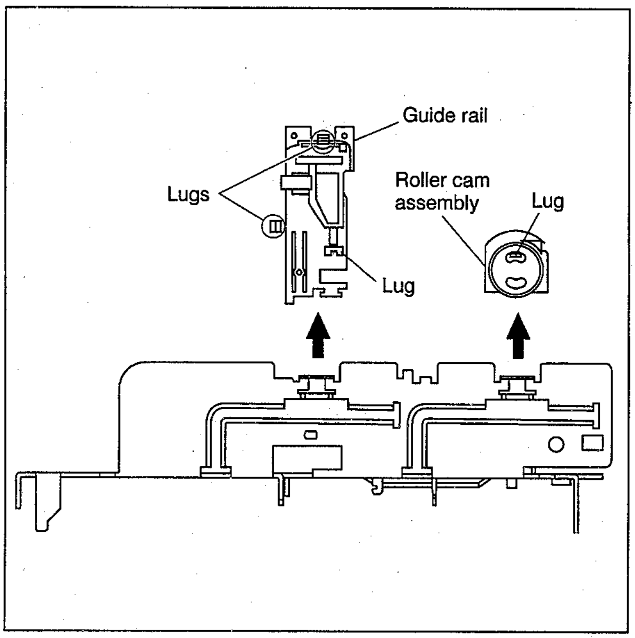

Guide rail
Lugs
Roller cam assembly
Lug
Lug

Fig. 2-2-2

(2) Remove the two slit washers and remove the cassette housing bracket. (See Fig.2-2-3.)
(3) Remove the opener guide, spring(A), door opener, relay gear and limit gear. (See Fig.2-2-3.)

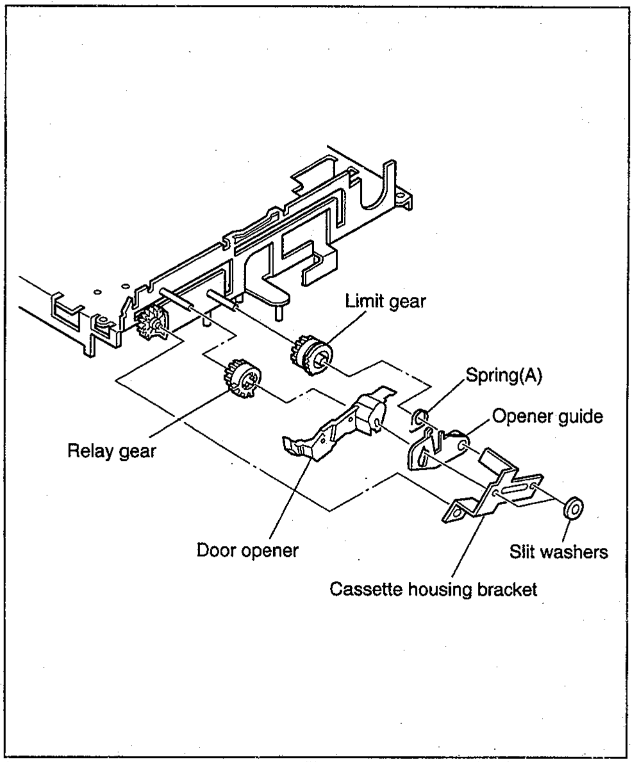

Limit gear
Spring(A)
Opener guide
Relay gear
Door opener
Slit washers
Cassette housing bracket

Fig. 2-2-3

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the roller cam assembly have been removed (so that the drive arm is upright). (See Fig.2-2-4.)

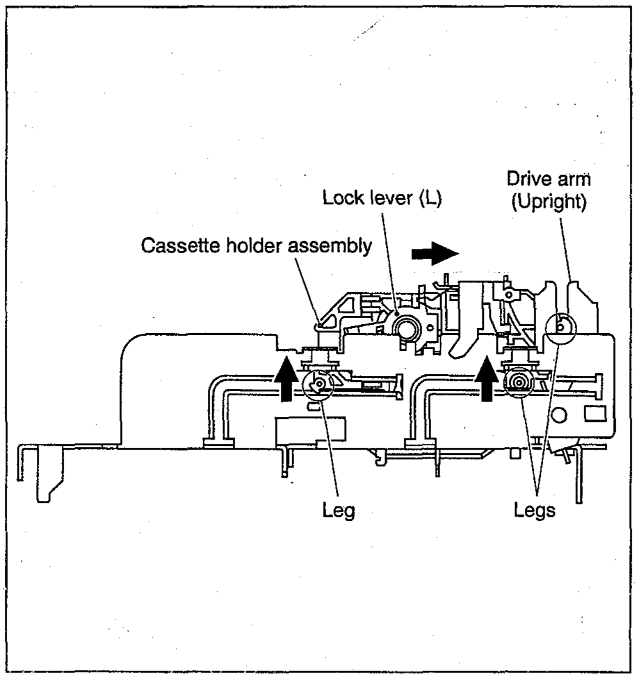

Drive arm
(Upright)
Lock lever (L)
Cassette holder assembly
Leg
Legs

Fig. 2-2-4

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs Ⓐ and Ⓑ on the right side out of the rail and also pull up the leg Ⓒ. (See Fig.2-2-5 and Fig.2-2-6.)

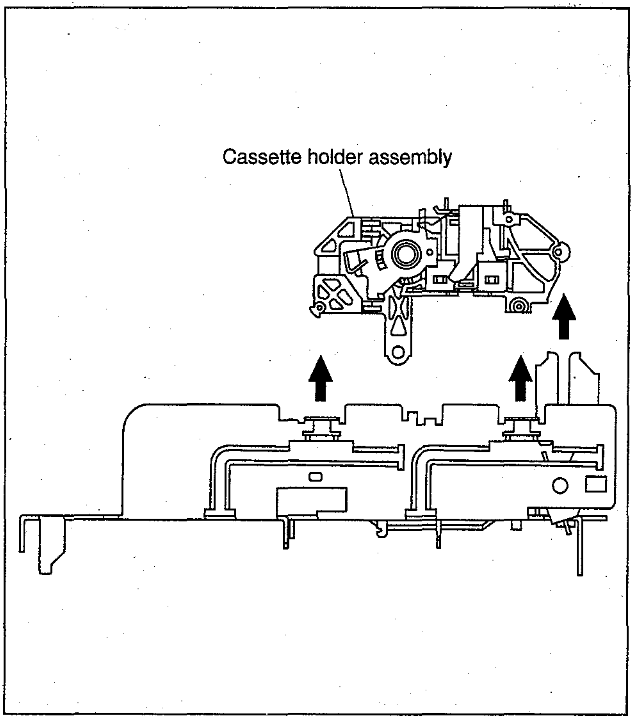

Cassette holder assembly

Fig. 2-2-5

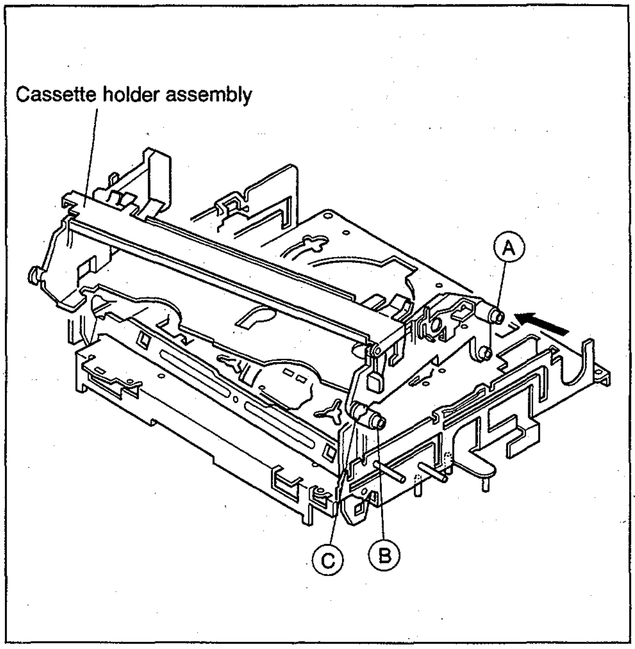

Cassette holder assembly
Ⓐ
Ⓒ
Ⓑ

Fig. 2-2-6

(6) Draw out the drive gear, and remove the drive arm.

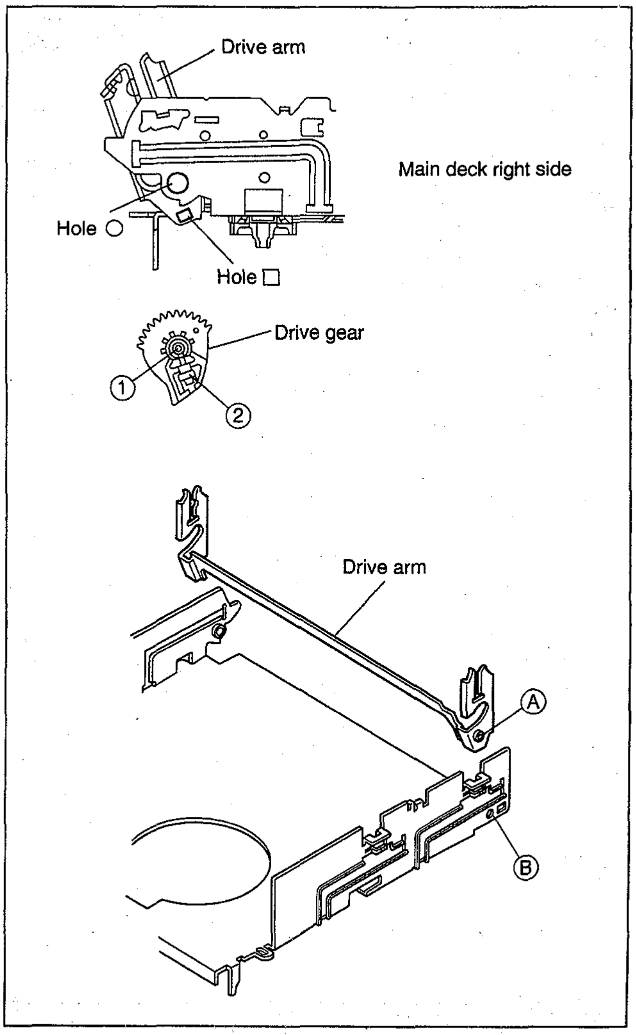

Drive arm
Main deck right side
Hole ○
Hole □
Drive gear
①
②
Drive arm
Ⓐ
Ⓑ

Fig. 2-2-7

2. How to install (Phase matching)

(1) Insert the section Ⓐ of the drive arm into the section Ⓑ of the main deck.
(2) Insert the section ① of the drive gear into the round hole, and the section ② into the square hole on the drive arm. (See Fig.2-2-7.)
(3) Hold the drive arm upright and fit the leg Ⓒ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-8.)
(4) While swinging the lock lever (R) of the cassette holder assembly toward the front, put the legs Ⓐ and Ⓑ into the rail. (See Fig.2-2-8.)
(5) Drop the three legs on the left side of the cassette holder assembly into the groove at one time. (See Fig.2-2-9.)
(6) Slide the whole cassette holder assembly toward the front to bring it to the eject end position.
(7) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the guide hole on the main deck. (See Fig.2-2-10.)
(8) Install so that the notch on the periphery of the relay gear is aligned with the notch of the main deck and that hole A of the relay gear is aligned with the hole A of the limit gear and that hole B of the relay gear is aligned with the hole B of the drive gear. (See Fig.2-2-10.)
(9) Install the door opener, opener guide, spring(A) and cassette housing bracket and fasten the two slit washers.

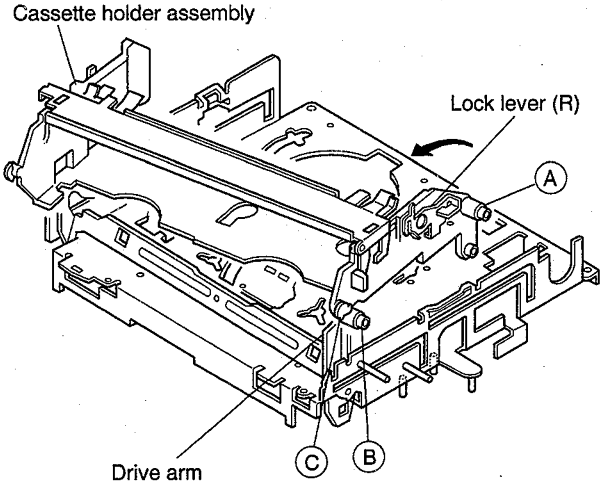

Cassette holder assembly
Lock lever (R)
A
Drive arm
C
B

Fig. 2-2-8

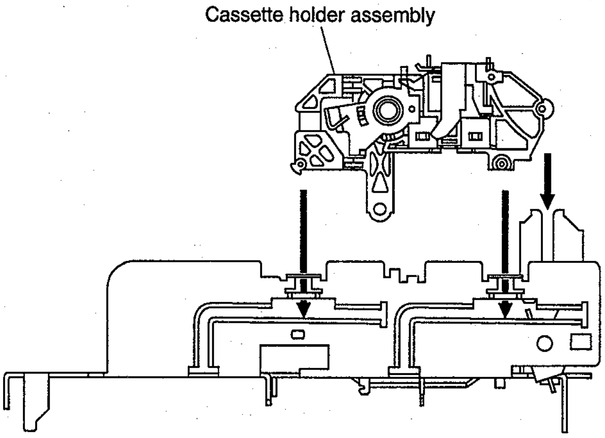

Cassette holder assembly

Fig. 2-2-9

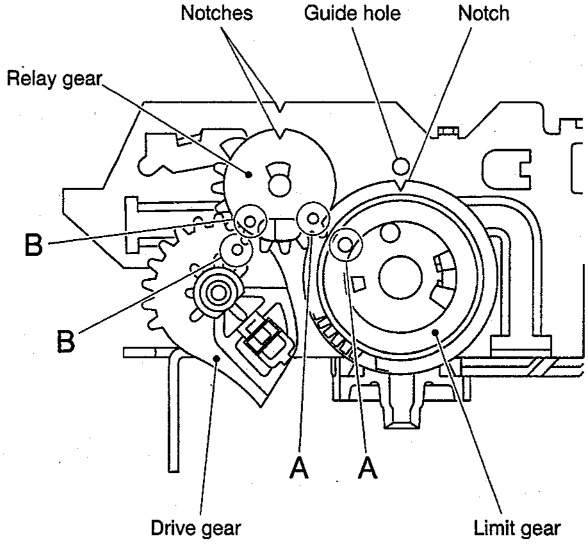

Notches
Guide hole
Notch
Relay gear
B
B
A
A
Drive gear
Limit gear

Fig. 2-2-10

2.2.4 Pinch Roller Arm Assembly

1. How to remove

(1) Remove the spring from the hook of the press lever assembly.

(2) Remove the slit washer and remove the pinch roller seat 2. (See Fig.2-2-11.)

(3) Remove the pinch roller arm assembly by pulling it up.

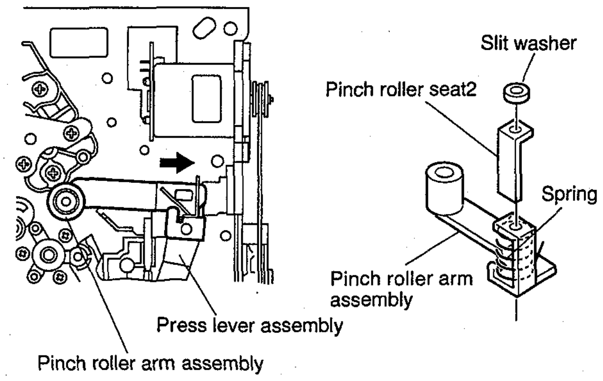

Slit washer
Pinch roller seat2
Spring
Pinch roller arm assembly
Press lever assembly
Pinch roller arm assembly

Fig. 2-2-11

2.2.5 Guide Arm Assembly and Press Lever Assembly

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm assembly by pulling it up.

(2) Remove the press lever assembly by pulling it up. (See Fig.2-2-12.)

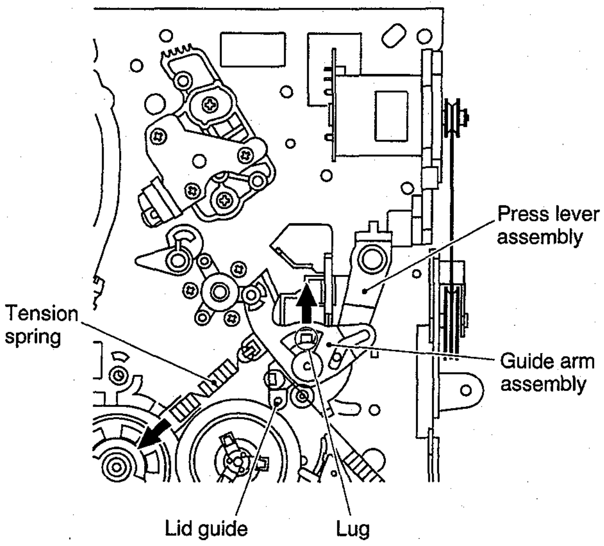

Press lever assembly
Tension spring
Guide arm assembly
Lid guide
Lug

Fig. 2-2-12

2.2.6 Audio Control Head

1. How to remove

(1) Remove the two screws (A) and remove the audio control head together with the head base.

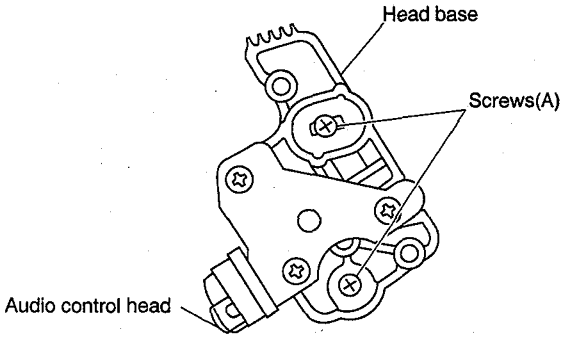

Head base
Screws(A)
Audio control head

Fig. 2-2-13

(2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

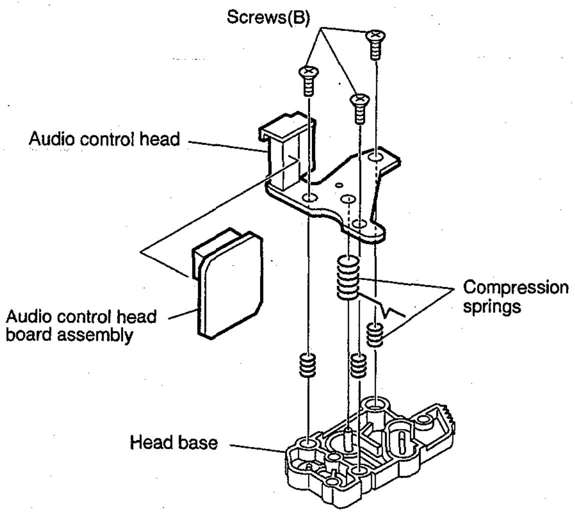

Screws(B)
Audio control head
Compression springs
Audio control head board assembly
Head base

Fig. 2-2-14

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-15. Also make sure that the screw center is brought into alignment with the center position of the slot.

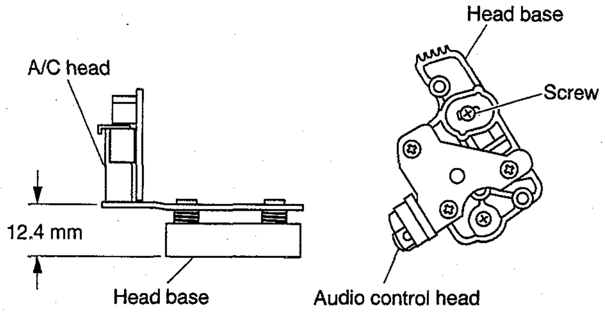

Head base
A/C head
Screw
12.4 mm
Head base
Audio control head

Fig. 2-2-15

2.2.7 Loading Motor

1. How to remove

(1) Remove the belt wound around the worm gear.

(2) Open the two lugs of the motor guide and remove the loading motor, loading motor board assembly and motor guide altogether by pulling them up.

(3) When replacing the loading motor board assembly, take care with the orientation of the loading motor. (Install so that the loading motor label faces upward.)

(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-16.

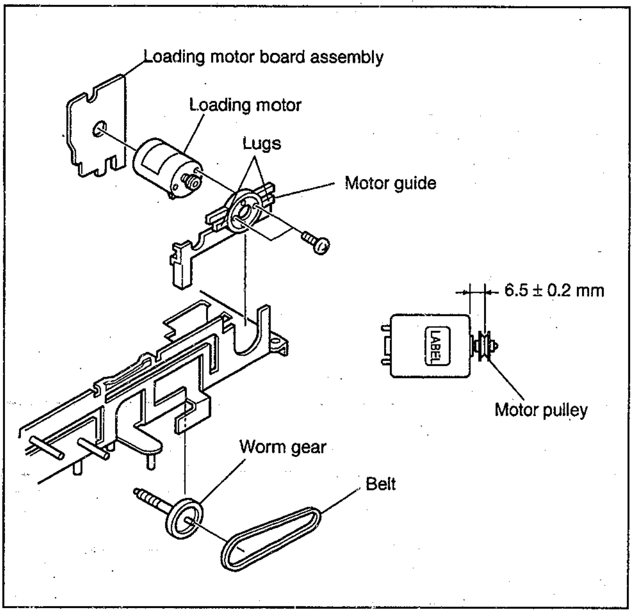


Fig. 2-2-16

2.2.8 Capstan Motor

1. How to remove

(1) Remove the belt (capstan) on the mechanism assembly back side.

(2) Remove the three screws (A) and remove the capstan motor.

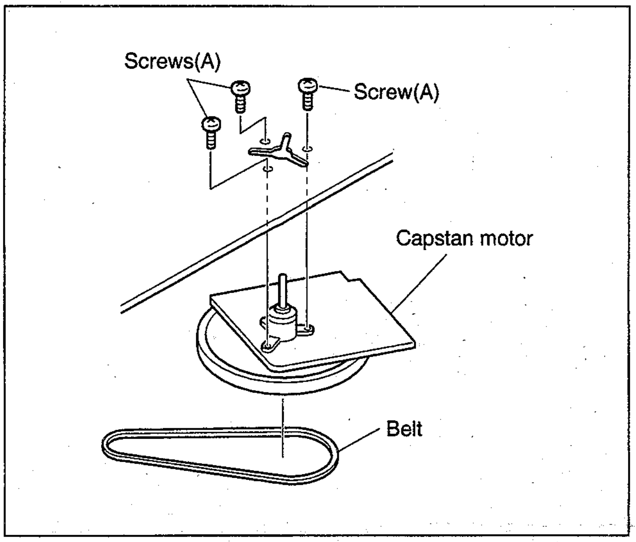


Fig. 2-2-17

2. How to install (Centering the mounting position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.

(The capstan motor is centrally located when the unit is shipped from the factory.)

(1) Provisionally tighten the three screws (A) securing the capstan motor.

(2) Install the mechanism assembly to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism.) Make sure that all the connectors for the mechanism assembly and the Main board assembly are correctly installed as indicated in Fig. 2-2-18.

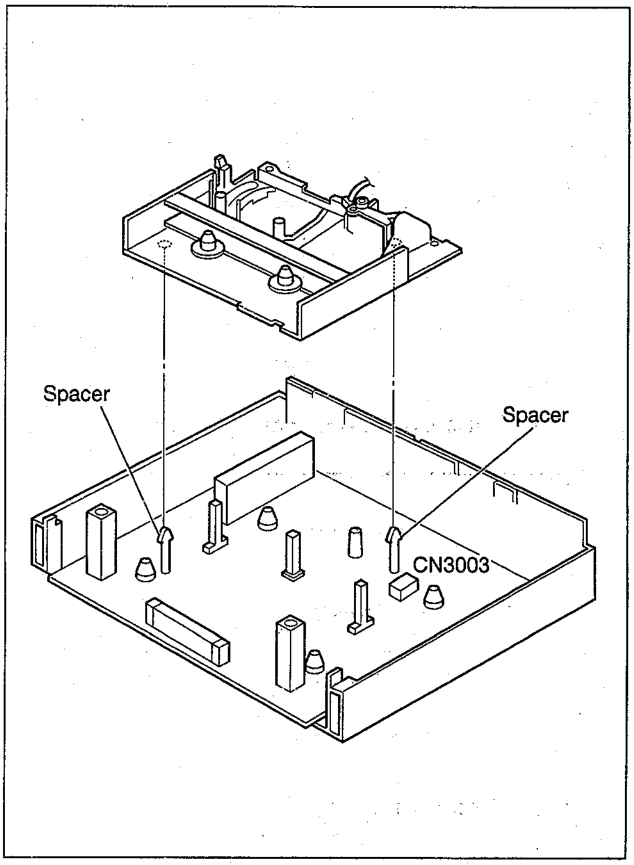


Fig. 2-2-18

(3) Making sure that the connector CN3003 of the capstan motor is correctly mounted, and securely tighten the three screws (A).

Note: *When the capstan motor has been replaced with a new one, perform recording in the EP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).*

2.2.9 Pole Base Assembly (supply or take-up side)

1. How to remove

(1) Remove the UV catcher 2 on the removal side by loosening the screw (A).

(2) Remove the pole base assembly on the supply side from the mechanism assembly by loosening the screw (B) on the mechanism assembly back side and sliding the pole base assembly toward the UV catcher 2.

(3) As for the pole base assembly on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate. (See the "Procedures for Lowering the Cassette holder assembly" of 1.3 DISASSEMBLY/ASSEMBLY METHOD.) Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing the screw (B).

NOTE: *After reinstalling the Pole base assembly and the UV catcher2, be sure to perform compatibility adjustment.*

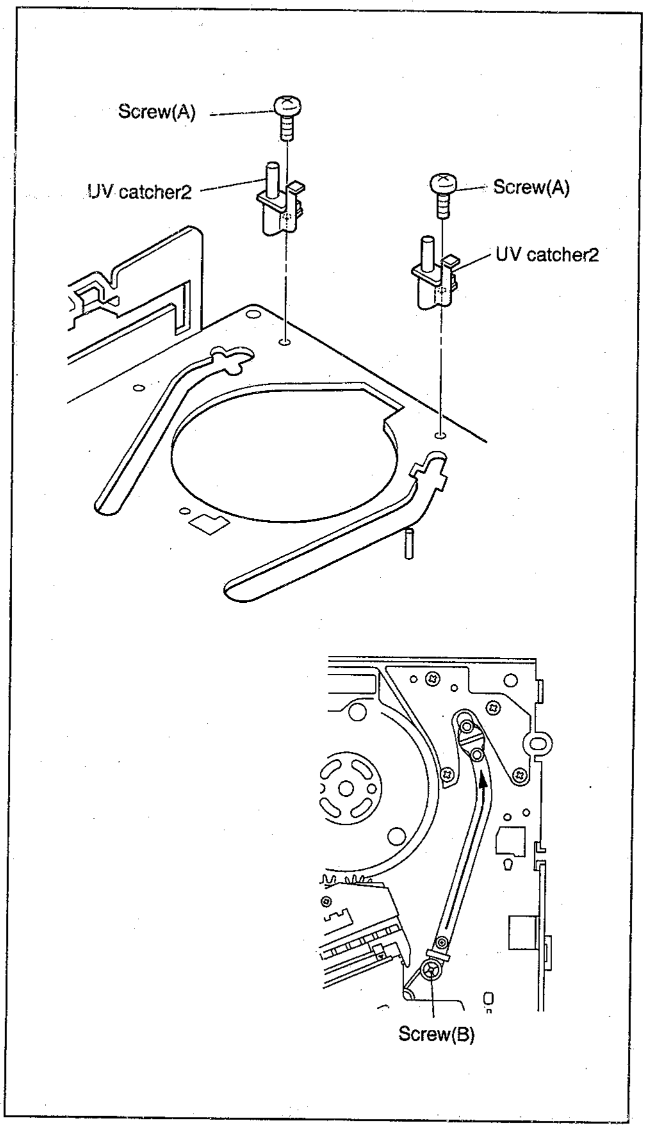

Screw(A)
UV catcher2
Screw(A)
UV catcher2
Screw(B)

Fig. 2-2-19

2.2.10 Rotary Encoder

1. How to remove

(1) Remove the screw (A) and remove the rotary encoder by pulling it up. (See Fig. 2-2-20.)

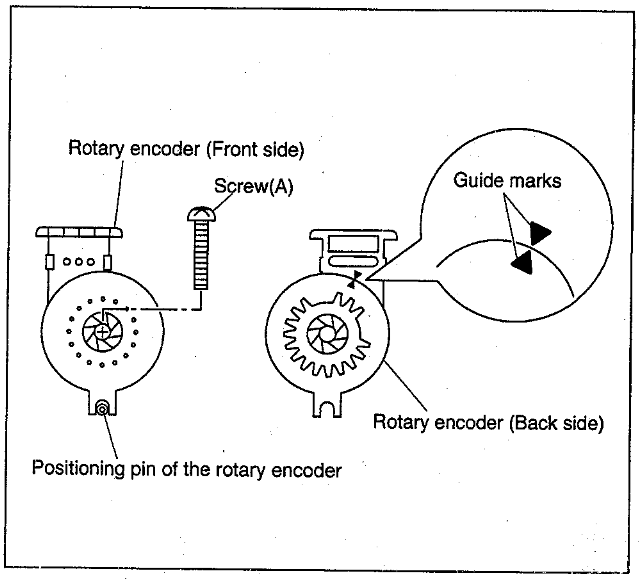

Rotary encoder (Front side)
Screw(A)
Guide marks
Rotary encoder (Back side)
Positioning pin of the rotary encoder

Fig. 2-2-20

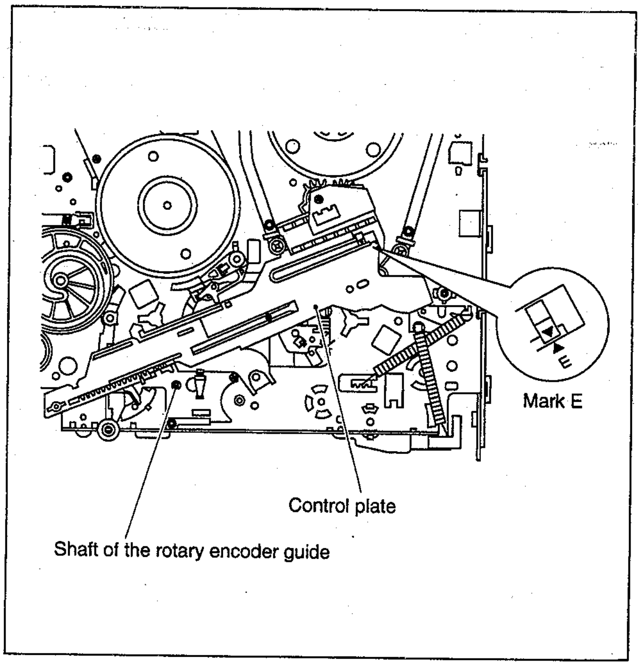

E
Mark E
Control plate
Shaft of the rotary encoder guide

Fig. 2-2-21

2. How to install (Phase matching)

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the guide marks on the rotary encoder into alignment as indicated in Fig.2-2-20. (See Fig. 2-2-20 and Fig. 2-2-21.)

(2) Turn over the rotary encoder with its guide marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.

(3) Tighten the screw (A) to complete the installation.

2.2.11 Clutch Unit

(1) Remove the belt wound around the capstan motor and the clutch unit.
(2) Remove the slit washer and remove the clutch unit.

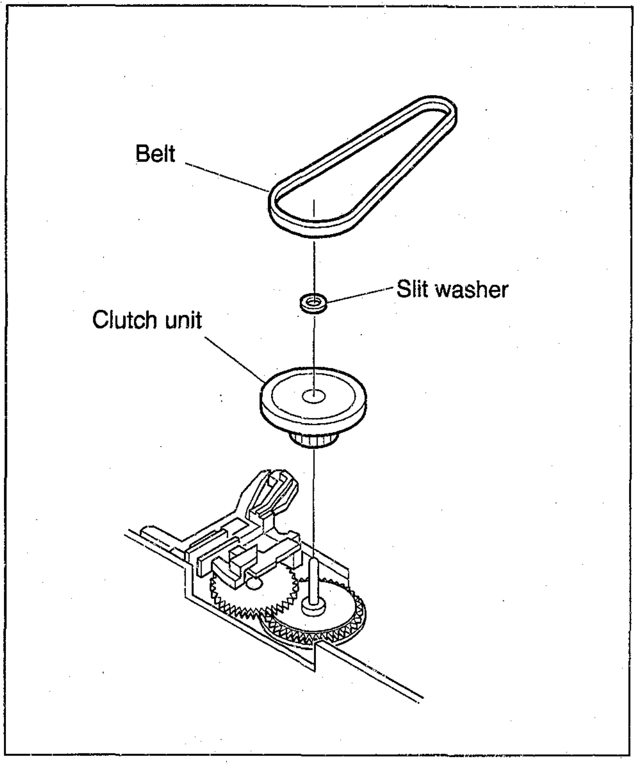

Belt
Slit washer
Clutch unit

Fig. 2-2-22

2.2.12 Change Lever Assembly, Direct Gear and Clutch Gear1

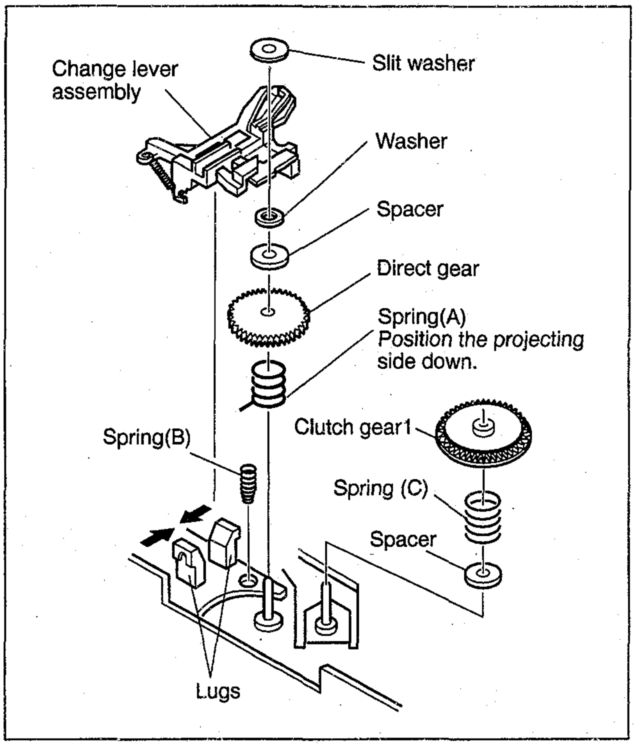

Change lever assembly
Slit washer
Washer
Spacer
Direct gear
Spring(A)
Position the projecting side down.
Spring(B)
Clutch gear1
Spring (C)
Spacer
Lugs

Fig. 2-2-23

1. How to remove

(1) Release the two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever assembly.
(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care so as not to lose the washer and spring. (See Fig.2-2-23.)

2. How to install

(1) Install the clutch gear1, spring (A), spring (C), direct gear, spacer and others to the individual shafts of the main deck, and finally the slit washer. (See Fig.2-2-23.)
(2) Let the spring (B) drops into the rotary encoder guide hole and install the change lever assembly.(Take care not to mistake a direction of the spring.) The point is to slightly lift the clutch gear1 and catch it from the both sides with the assembly. (See Fig.2-2-24.)

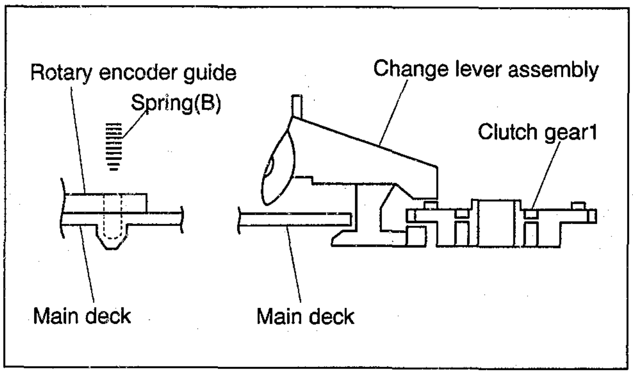

Rotary encoder guide
Spring(B)
Change lever assembly
Clutch gear1
Main deck
Main deck

Fig. 2-2-24

2.2.13 Link Lever

1. How to remove

(1) Remove the two slit washers.
(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the locking section of the control plate.

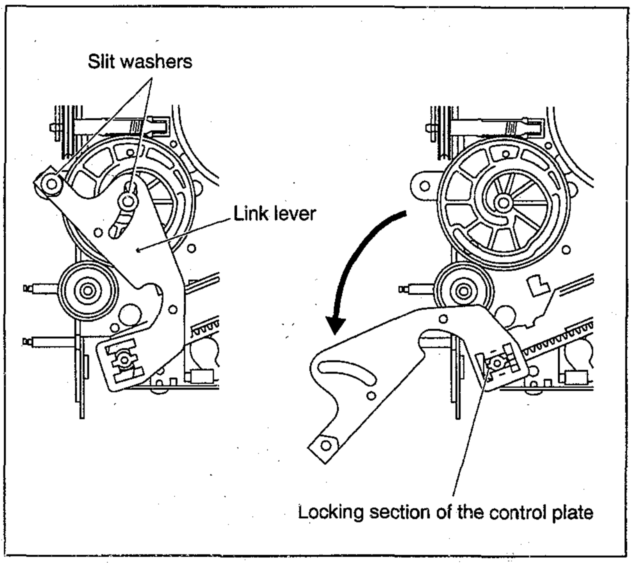

Slit washers
Link lever
Locking section of the control plate

Fig. 2-2-25

2. How to install (Phase matching)

(1) Slide the control plate so that its mark E is aligned with the mark ▼ on the loading arm gear shaft. (See Fig.2-2-26.)
(2) Rotate the worm gear until the guide hole of the control cam is aligned exactly with the guide hole of the main deck. (See Fig.2-2-27.)
(3) Insert the link lever into the locking section of the control plate. (See Fig.2-2-25.)
(4) Rotate the link lever clockwise so that it is installed on the shafts in the center and on the left of the control cam.
(5) Fasten the slit washers at these two points.

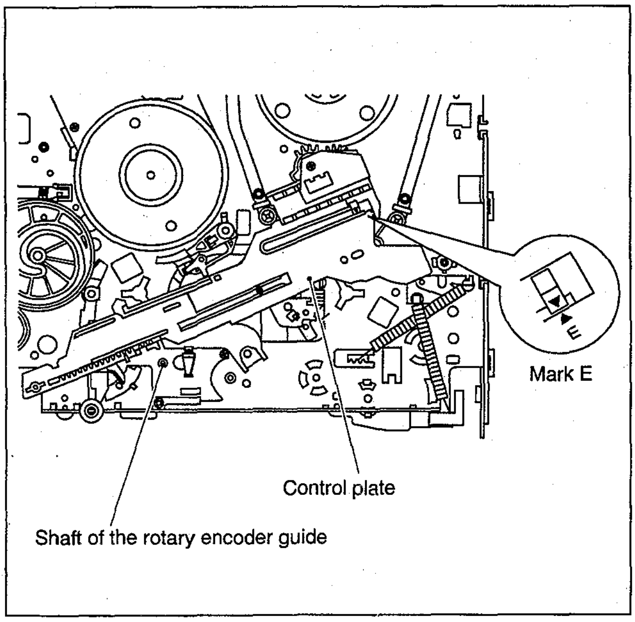

E
Mark E
Control plate
Shaft of the rotary encoder guide

Fig. 2-2-26

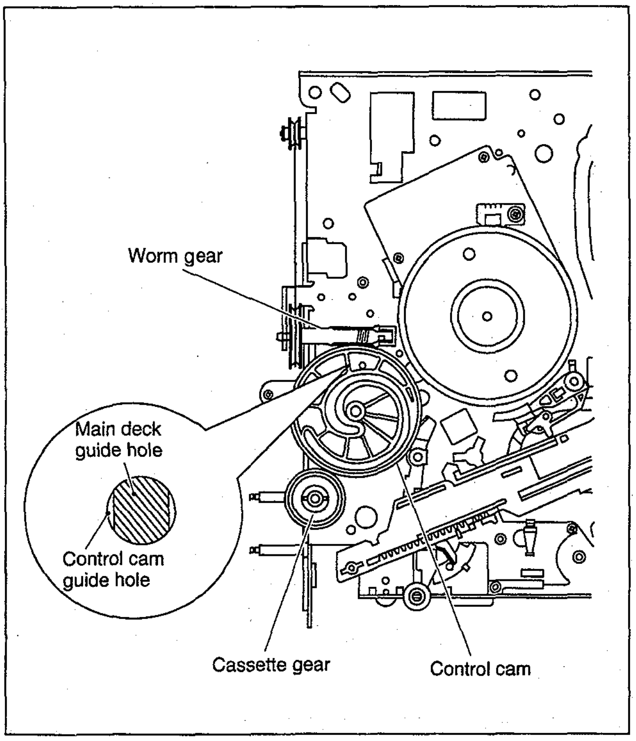

Worm gear
Main deck guide hole
Control cam guide hole
Cassette gear
Control cam

Fig. 2-2-27

2.2.14 Cassette Gear, Control Cam and Worm Gear

1. How to remove

(1) Remove the control cam by lifting it.
(2) Open the two lugs of the cassette gear outward and pull the latter off.
(3) Remove the belt wound around the worm gear and the loading motor.
(4) Open the lug of the lid guide outward and remove the worm gear.

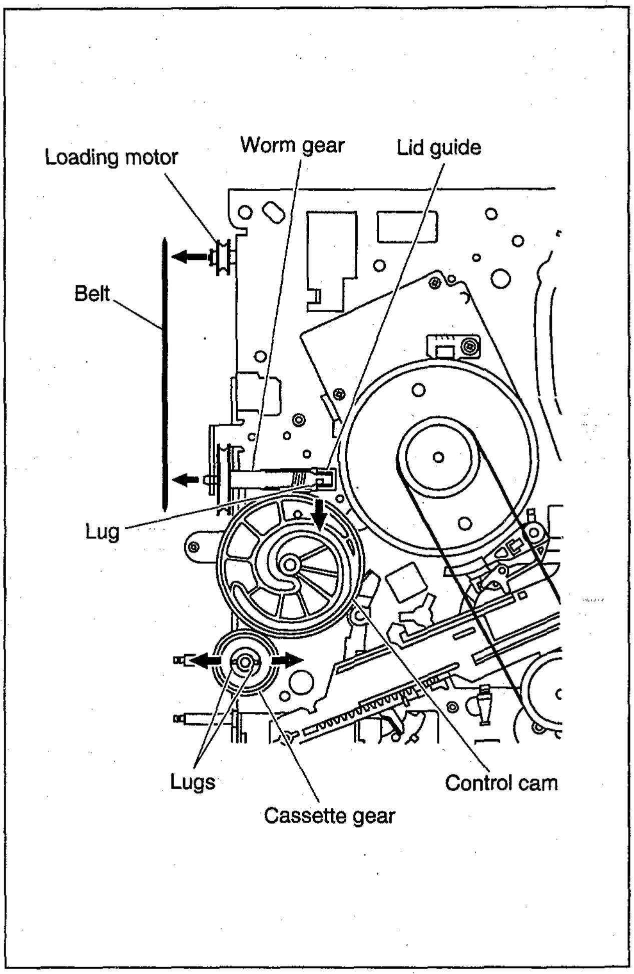

Loading motor
Worm gear
Lid guide
Belt
Lug
Lugs
Cassette gear
Control cam

Fig. 2-2-28

2.2.15 Control Plate

1. How to remove

(1) Remove the screw (A) retaining the control bracket 1 and remove the latter.
(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-29.)

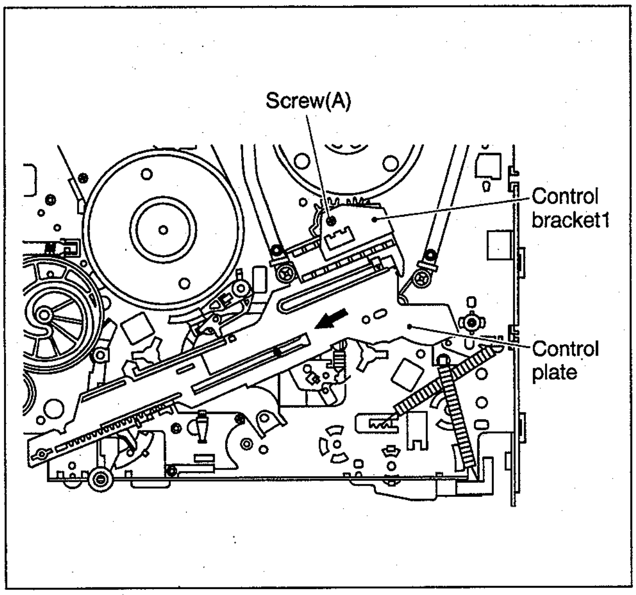

Screw(A)
Control bracket1
Control plate

Fig. 2-2-29

2. How to install (Phase matching)

(1) Adjust the position of the idler arm assembly pin as indicated in Fig.2-2-30 (to the left of centre of the R section).

(2) Bring the guide hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.

(3) Install the control plate so that the section A of the loading arm gear shaft fits into the hole (A) of the control plate, the section B of the control plate guide into the hole (B), and the control plate comes under the section C of the rotary encoder guide and the section D of the loading arm gear shaft while press-fit the pole base assmebly (supply side) as indicated by the arrow. It is important that the tension arm assembly shaft is positioned closer toward you than the control plate. (See Fig.2-2-31.)

(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-31.)

(5) Pull off the hexagonal wrench for positioning.

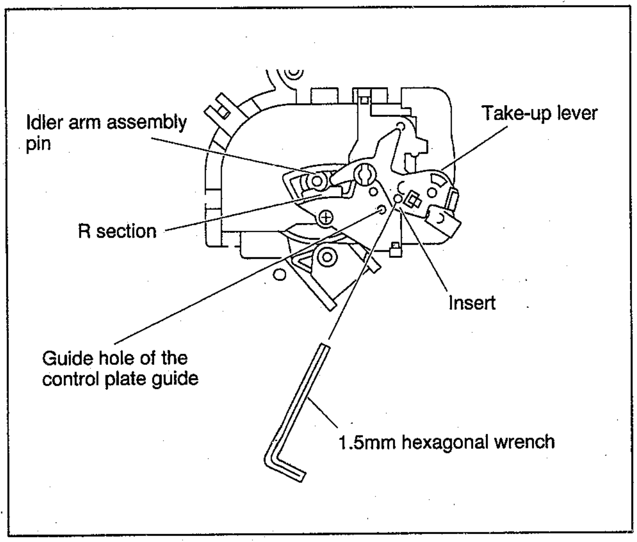

Idler arm assembly pin
Take-up lever
R section
Insert
Guide hole of the control plate guide
1.5mm hexagonal wrench

Fig. 2-2-30

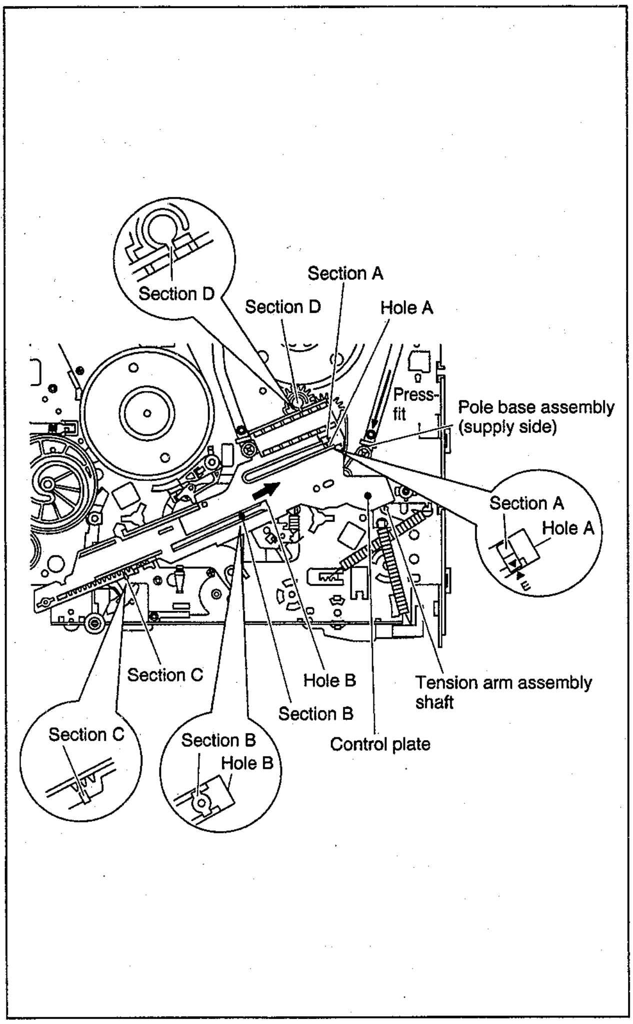

Section D
Section A
Section D
Hole A
Press-fit
Pole base assembly (supply side)
Section A
Hole A
E
Section C
Hole B
Section B
Tension arm assembly shaft
Section C
Section B
Hole B
Control plate

Fig. 2-2-31

2.2.16 Loading Arm Gear (supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

(1) Remove the loading arm gear (supply side) by loosening the screw (A). (See Fig. 2-2-32.)

(2) Remove the screw (B) and remove the torsion arm from the pole base assembly (take-up side). (See Fig.2-2-32.)

(3) Turn the loading arm gear (take-up side) clockwise so that the notch of the loading arm gear (take-up side) is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise so that the notch is in alignment with the projection and remove the loading arm gear (take-up side). (See Fig.2-2-32 and Fig. 2-2-33.)

(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove the screw (C) and remove the loading arm gear shaft by sliding it.

2. How to install

(1) Align the notch of the loading arm gear (take-up side) to the projection B of the loading arm gear shaft and slip it over. Then rotate it clockwise for alignment with the projection A and slip it down to the bottom. (See Fig.2-2-33.)

(2) Then turn the loading arm gear (take-up side) counterclockwise. Hang the torsion arm on the pole base assembly (take-up side) and tighten the screw (B).

(3) Install the loading arm gear (supply side) so that the guide mark of the loading arm gear (take-up side) is in alignment with the guide mark of the loading arm gear (supply side). Then hang the torsion arm on the pole base assembly (supply side) and tighten the screw (A). (See Fig.2-2-32.)

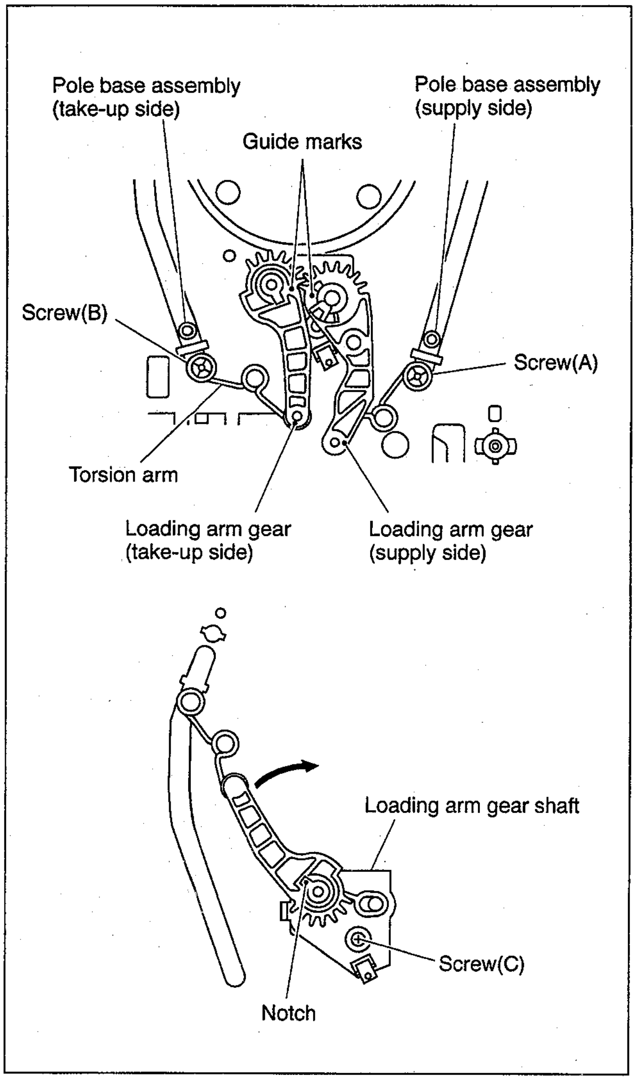

Pole base assembly (take-up side)
Pole base assembly (supply side)
Guide marks
Screw(B)
Screw(A)
Torsion arm
Loading arm gear (take-up side)
Loading arm gear (supply side)
Loading arm gear shaft
Screw(C)
Notch

Fig. 2-2-32

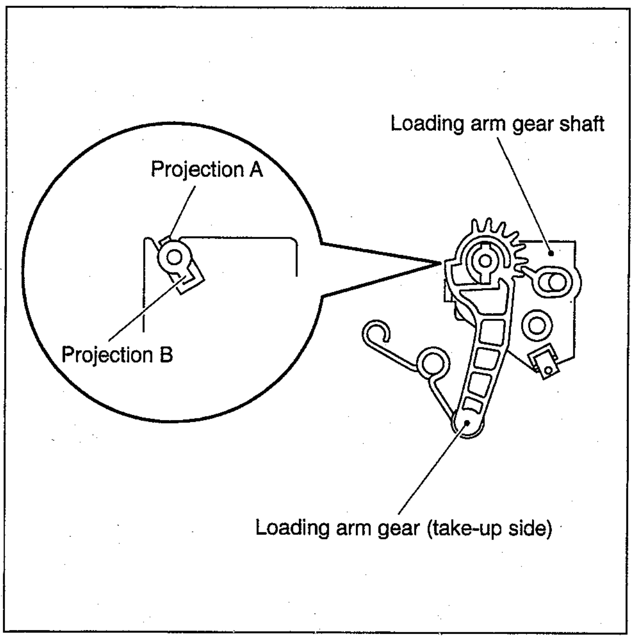

Loading arm gear shaft
Projection A
Projection B
Loading arm gear (take-up side)

Fig. 2-2-33

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

(1) Remove the spring of the take-up lever from the main deck.

(2) Remove the lug (A) of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.

(3) Remove the screw (A).

(4) Align the idler arm assembly pin in the center of the R section of the control plate guide, remove the control plate guide lugs (B) and (C) from the main deck, and remove the control plate guide.

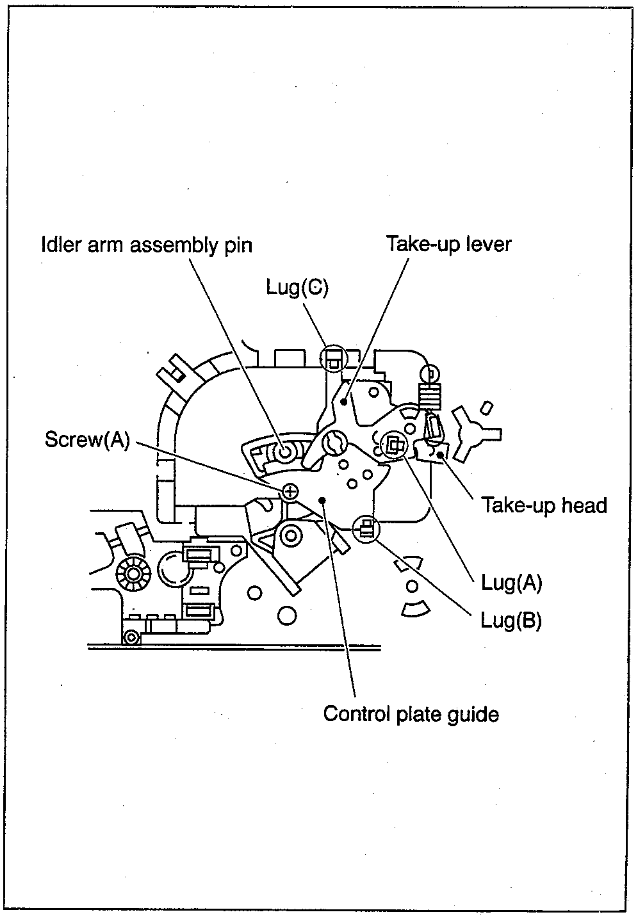

Idler arm assembly pin
Take-up lever
Lug(C)
Screw(A)
Take-up head
Lug(A)
Lug(B)
Control plate guide

Fig. 2-2-34

2.2.18 Capstan Brake Assembly

1. How to remove

(1) Move the lug (A) of the capstan brake assembly in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-35.)

(2) Remove the lug (B) of the capstan brake assembly from the main deck and remove the capstan brake assembly.

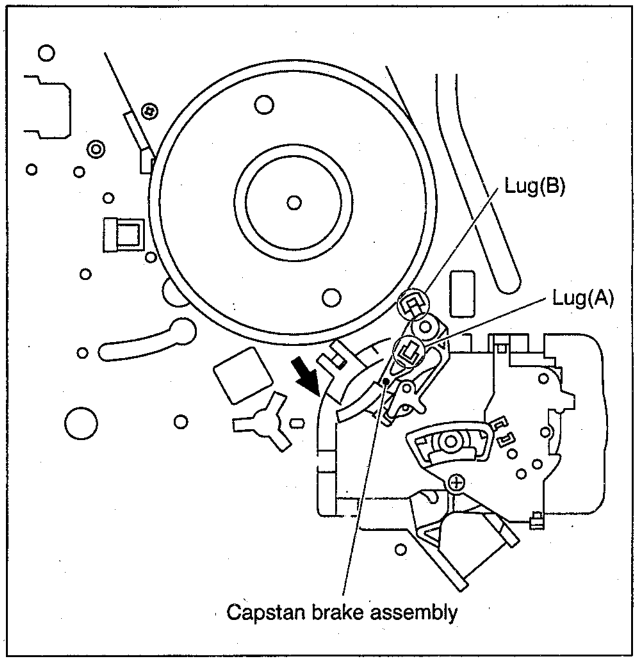

Lug(B)
Lug(A)
Capstan brake assembly

Fig. 2-2-35

2.2.19 Sub Brake Assembly (take-up side)

1. How to remove

(1) Remove the spring attached to the lid guide and sub brake assembly (take-up side).

(2) Bring the lug (A) of the sub brake assembly (take-up side) into alignment with the notch of the main deck.

(3) Remove the lugs (B) and (C) of the sub brake assembly (take-up side) from the main deck and remove the sub brake assembly (take-up side).

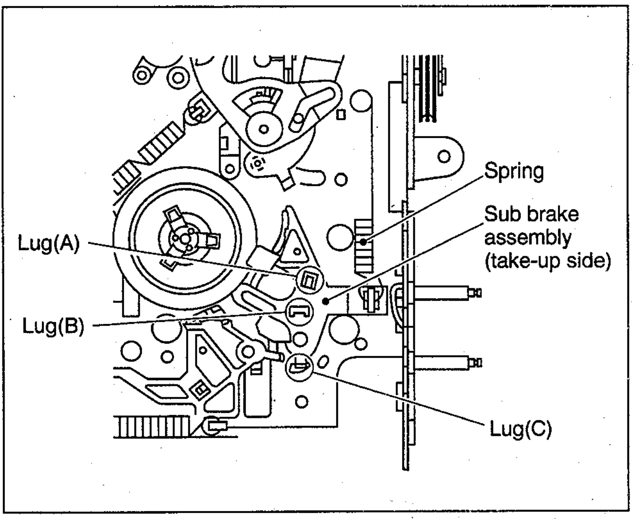

Spring
Sub brake assembly (take-up side)
Lug(A)
Lug(B)
Lug(C)

Fig. 2-2-36

2.2.20 Main Brake Assembly (take-up side), Reel Disk (take-up side) and Main Brake Assembly (supply side)

1. How to remove

(1) Move the main brake assembly (take-up side) in the arrow-indicated direction and remove the reel disk (take-up side).

(2) Remove the spring attached to the main brake assembly.

(3) Remove the lug (A) of the main brake assembly (take-up side) and pull out the lug (B) after bringing it into alignment with the main deck notch.

(4) Remove the lugs (C), (D) and (E) of the main brake assembly (supply side) from the main deck and pull them off. (See Fig.2-2-37.)

Note: *If the main brake assembly is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it.*
After the adjustment pin has been removed or the main brake assembly or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake assembly torque. See page 2-23 for the detailed adjustment procedures.

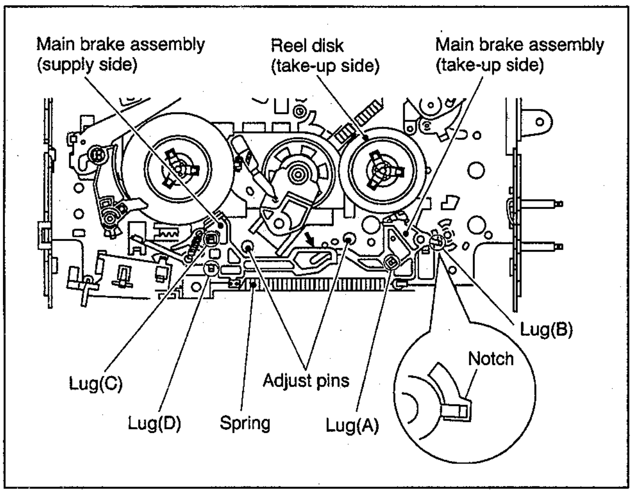

Main brake assembly (supply side)
Reel disk (take-up side)
Main brake assembly (take-up side)
Lug(B)
Notch
Lug(C)
Adjust pins
Lug(D)
Spring
Lug(A)

Fig. 2-2-37

(5) When installing the main brake assembly (take-up side), slide the brake lever in the direction as indicated by the arrow to prevent it from hitting the projection of the main brake assembly (take-up side). (See Fig.2-2-38.)

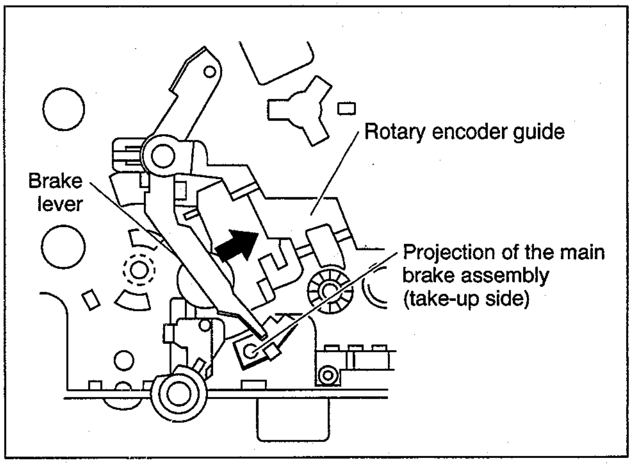

Rotary encoder guide
Brake lever
Projection of the main brake assembly (take-up side)

Fig. 2-2-38

2.2.21 Tension Brake Assembly, Reel Disk (supply side) and Tension Arm Assembly

1. How to remove

(1) Remove the three lugs of the tension brake assembly from the main deck and pull them off.

(2) Remove the reel disk (supply side) by loosening in the arrow-indicated direction the main brake assembly (supply side).

(3) Remove the tension spring on the back of the main deck. Then release the lug of the tension arm bearing in the arrow-indicated direction and draw out the tension arm assembly. (See Fig. 2-2-39.)

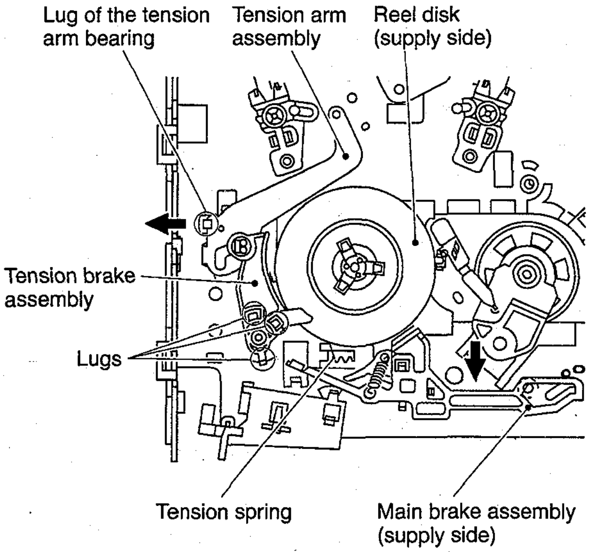

Lug of the tension arm bearing
Tension arm assembly
Reel disk (supply side)
Tension brake assembly
Lugs
Tension spring
Main brake assembly (supply side)

Fig. 2-2-39

2.2.22 Idler Lever, Idler Arm Assembly

1. How to remove

(1) Remove the lug of the idler lever from the main deck and remove the hook fitted in the idler arm assembly hole by lifting it.

(2) Remove the slit washer and pull out the idler arm assembly.

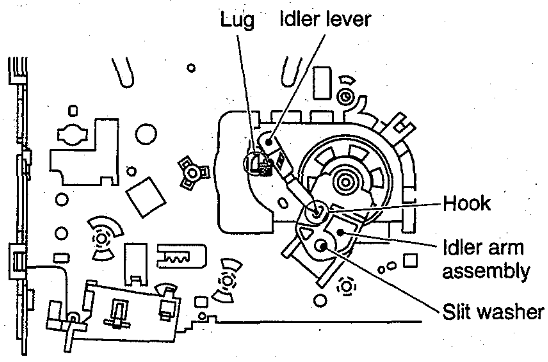

Lug
Idler lever
Hook
Idler arm assembly
Slit washer

Fig. 2-2-40

2.2.23 Stator Assembly

(1) Remove the flat cable.

(2) Remove the two screws (A).

(3) Remove the stator assembly by lifting in the arrow-indicated direction. (Take care that the brush spring does not jump out.)

(4) After installation, be sure to perform the PB switching point adjustment according to the electrical adjustment procedure.

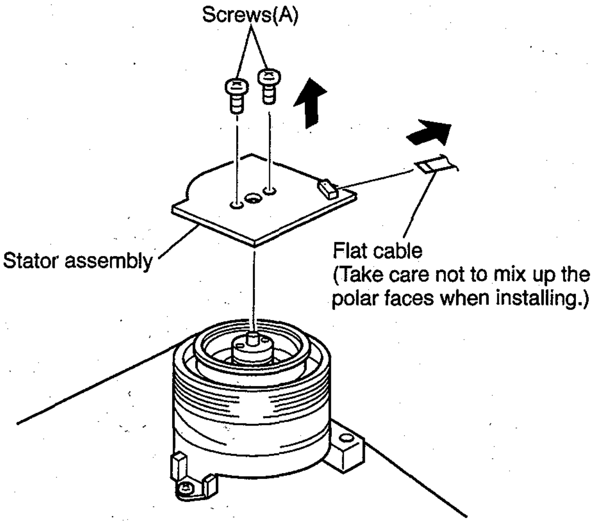

Screws(A)
Stator assembly
Flat cable
(Take care not to mix up the polar faces when installing.)

Fig. 2-2-41

2.2.24 Rotor Assembly

(1) Remove the stator assembly.

(2) Remove the two screws (B) and remove the rotor assembly.

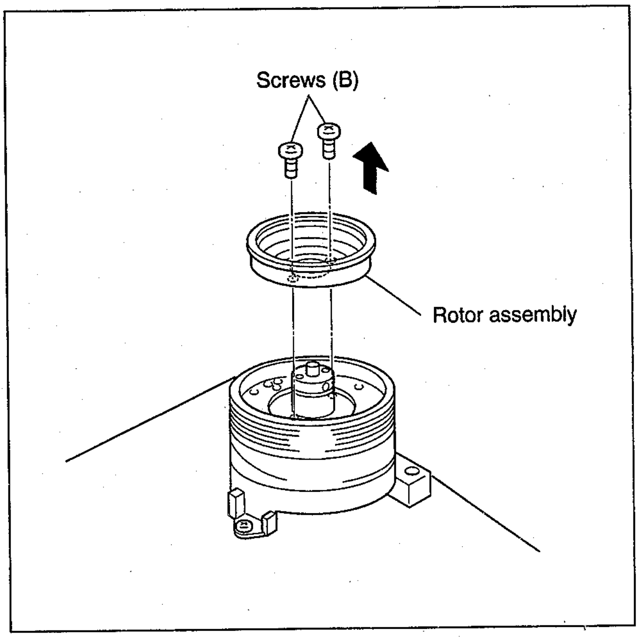

Screws (B)
Rotor assembly

Fig. 2-2-42

Note: *When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.*

(3) Match the phases of the upper drum assembly and the rotor assembly as indicated in Fig.2-2-43.

(4) Place the upper drum assembly hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-43.)

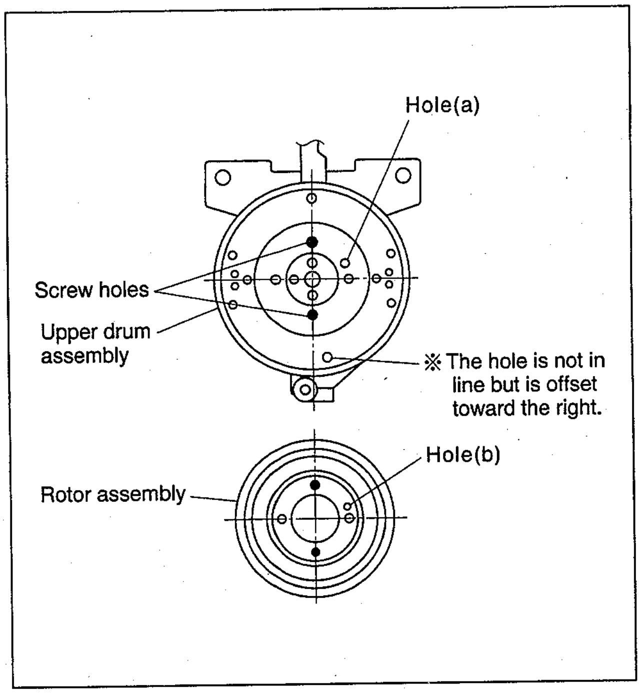

Hole(a)
Screw holes
Upper drum assembly
※The hole is not in line but is offset toward the right.
Hole(b)
Rotor assembly

Fig. 2-2-43

2.2.25 Upper Drum Assembly

1. How to remove

(1) Remove the stator assembly and rotor assembly.

(2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.

(3) Remove the upper drum assembly and remove the washer using tweezers.

Note: *When replacement is required, control the up-down movement of the brush. Never apply grease.*

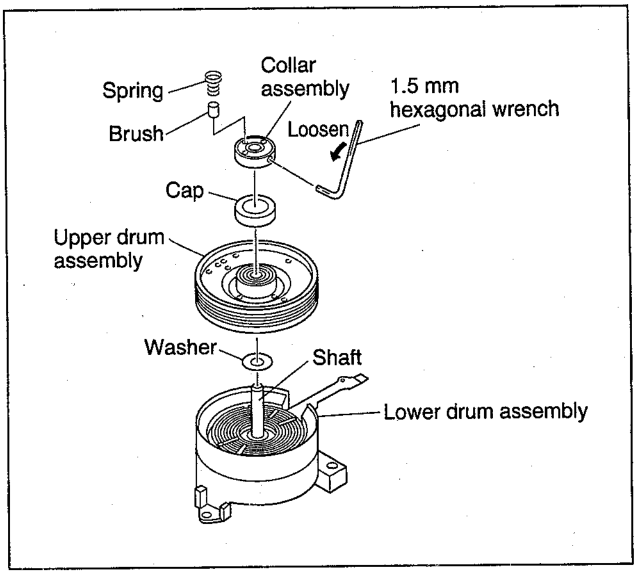

Spring
Collar assembly
1.5 mm hexagonal wrench
Brush
Loosen
Cap
Upper drum assembly
Washer
Shaft
Lower drum assembly

Fig. 2-2-44

2. How to install

(1) Clean the coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-45.)

(2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-44.)

Note: *When replacing the upper drum assembly, replace it the together with the washer.*

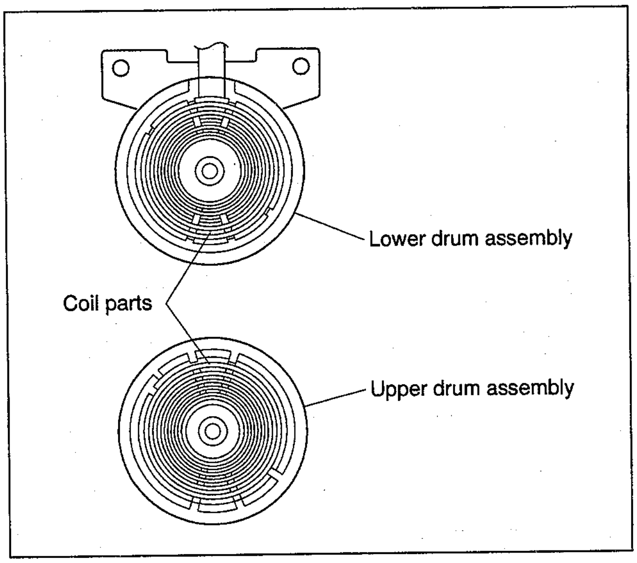

Lower drum assembly
Coil parts
Upper drum assembly

Fig. 2-2-45

(3) Install the cap to the upper drum assembly.

(4) Position the collar assembly as indicated in Fig.2-2-46 while controlling its up- down movement.

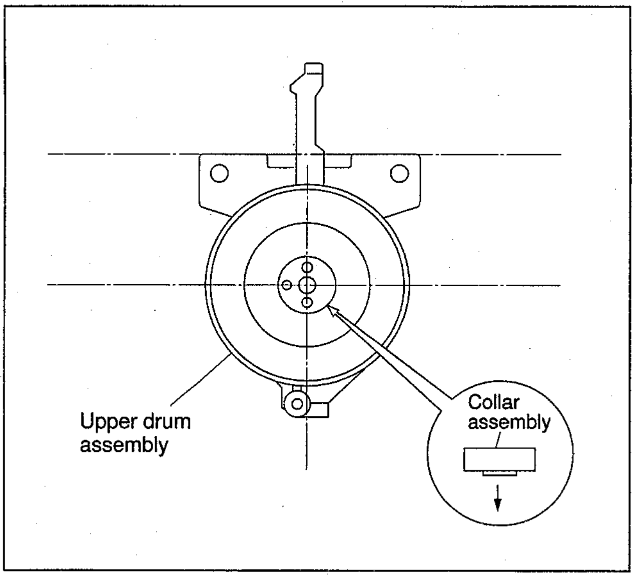


Fig. 2-2-46

(5) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

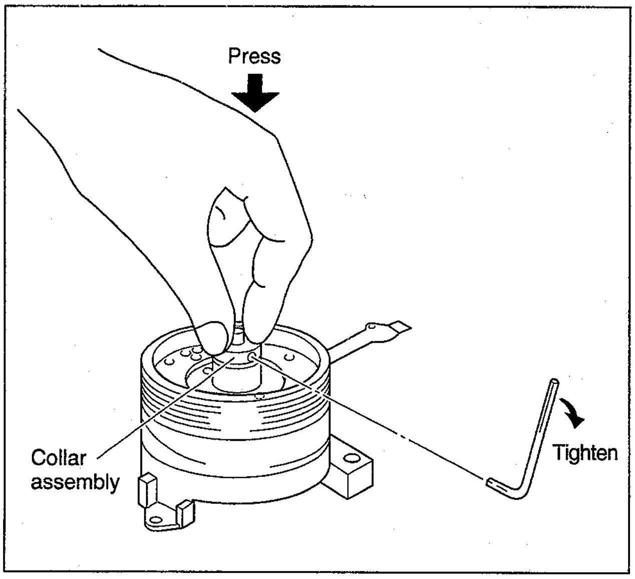


Fig. 2-2-47

(6) After installation, gently turn the upper drum assembly with your hand to make sure that it turns normally. Then install the brush and the spring.

(7) Install the rotor assembly and stator assembly according to Fig 2-2-41 and 2-2-42.

(8) When installation is complete, clean the upper drum assembly and lower drum assembly and carry out the following adjustments.

- PB switching point adjustment
- Slow tracking adjustment
- Compatibility adjustment (Be sure to check for compatibility for the LP mode.)

2.3 COMPATIBILITY ADJUSTMENT

Notes:
- *Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.*
- *To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.*

2.3.1 Checking/Adjustment of FM Waveform Linearity

(1) Connect the oscilloscope to TP106(PB.FM) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Playing the alignment tape (SP)., observe the FM waveform.

(3) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings tracking to the centre.)

(4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig.2-3-1.)

(5) Reduce the FM waveform while pressing the channel buttons (▲, ▼) during playback. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (See Fig.2-3-3.)

(6) Then play (EP) and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).

(7) Unload the cassette tape once, play the alignment tape (EP) again and confirm the FM waveform.

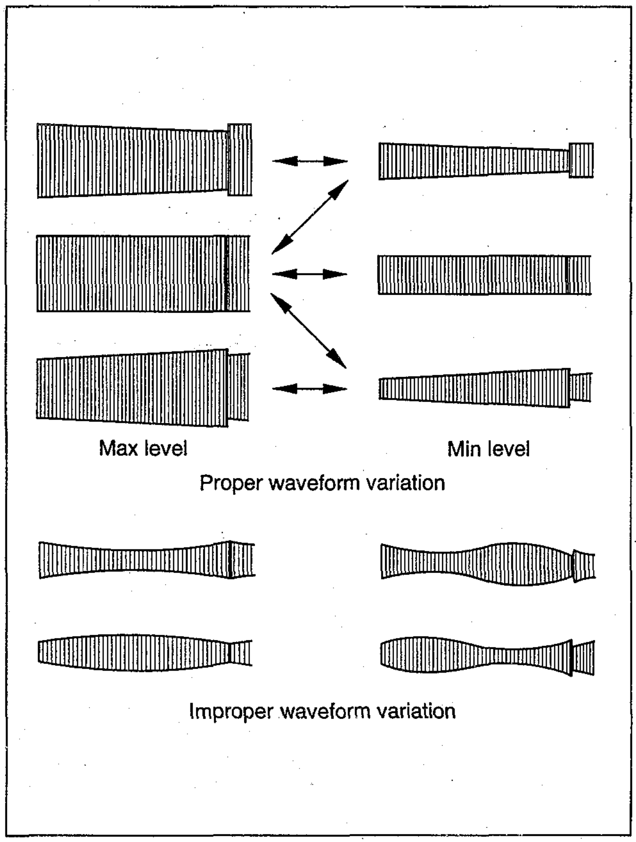

Max level
Min level
Proper waveform variation
Improper waveform variation

Fig. 2-3-1

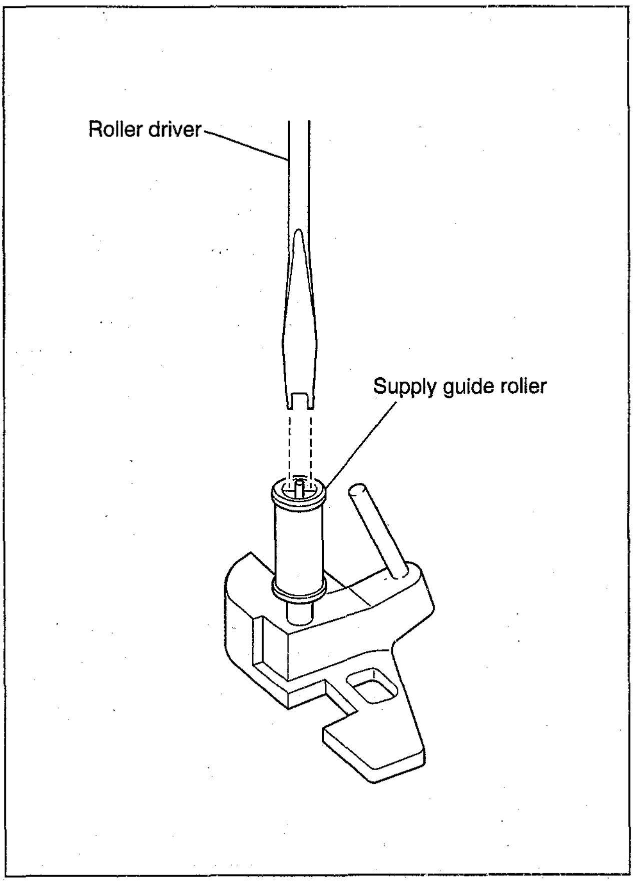

Roller driver
Supply guide roller

Fig. 2-3-2

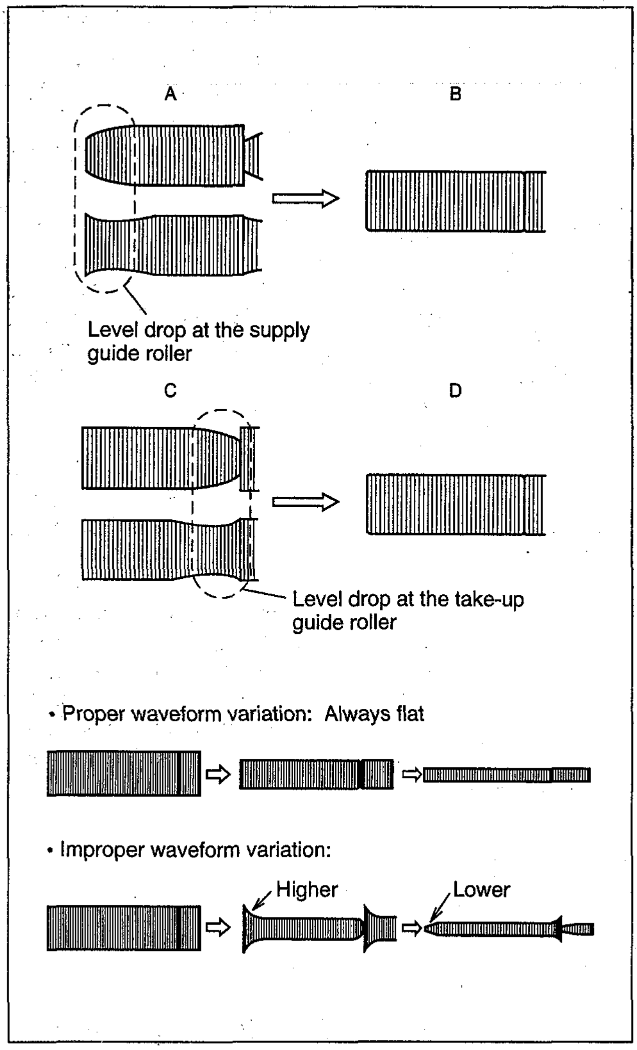

A
B
Level drop at the supply guide roller
C
D
Level drop at the take-up guide roller
• Proper waveform variation: Always flat
• Improper waveform variation:
Higher
Lower

Fig. 2-3-3

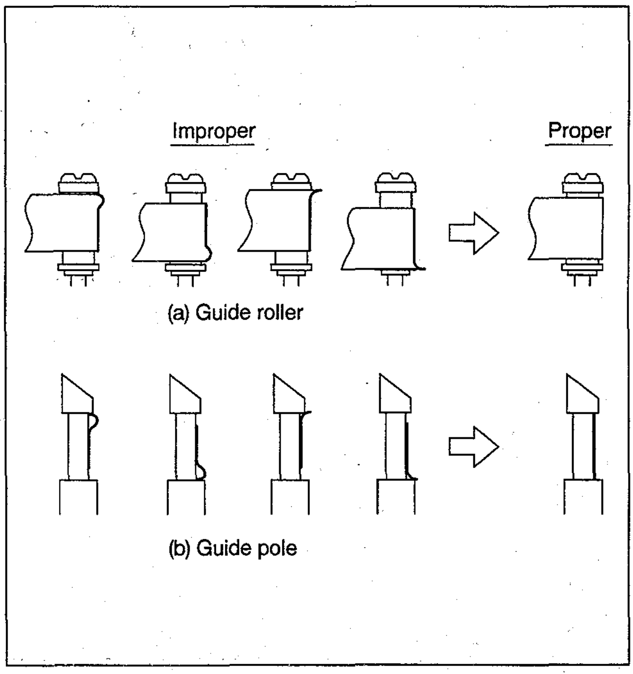

Improper
Proper
(a) Guide roller
(b) Guide pole

Fig. 2-3-4

2.3.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: *Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See Fig.2-2-15.)*

(1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL.P) of the main board assembly and observe the waveforms on both channels in the ALT mode.

(2) Play the alignment tape (SP) and adjust it by turning the screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. The screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

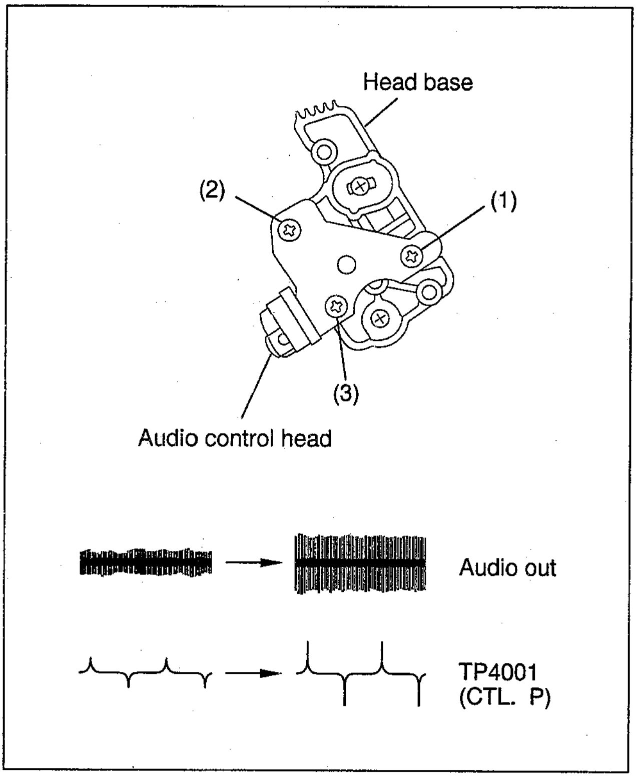


Fig. 2-3-5

2.3.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

(1) Connect the oscilloscope to TP106(PB.FM) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Play the alignment tape (SP) and observe the FM waveforms.

(3) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings tracking to the centre.)

(4) Loosen screws (4) and (5) so that the A/C head position bit is set as indicated in Fig.2-3-6.

(5) Turn the A/C head position bit fully toward the capstan. Then turn it back gradually toward the drum and stop on the second peak point position of the FM waveform output level. Then tighten the screw (4) temporarily.

(6) Then play the alignment tape (EP)

(7) Press the channel buttons (▲, ▼) simultaneously during playback to enter the manual tracking mode. (This also brings the tracking to the centre.)

(8) Perform the tracking operation and make sure that the FM waveform is at its maximum.

(9) If it is not at maximum, loosen the temporarily tightened the screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten the screws (4) and (5).

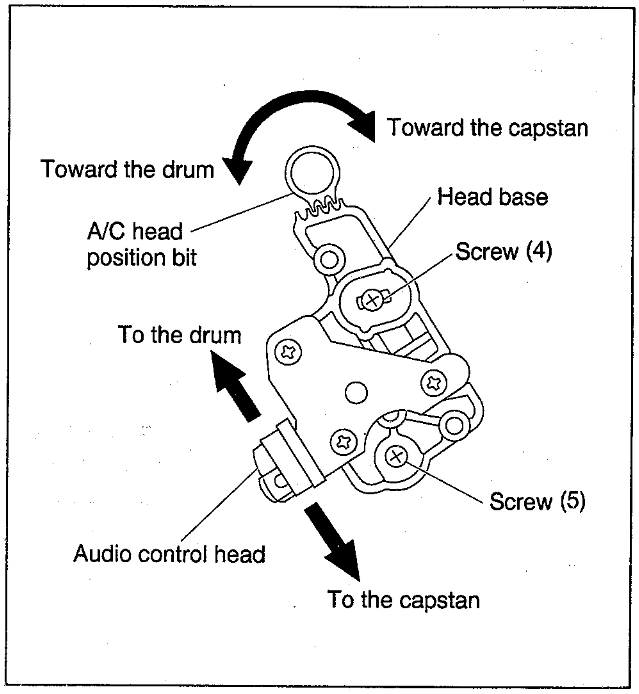


Fig. 2-3-6

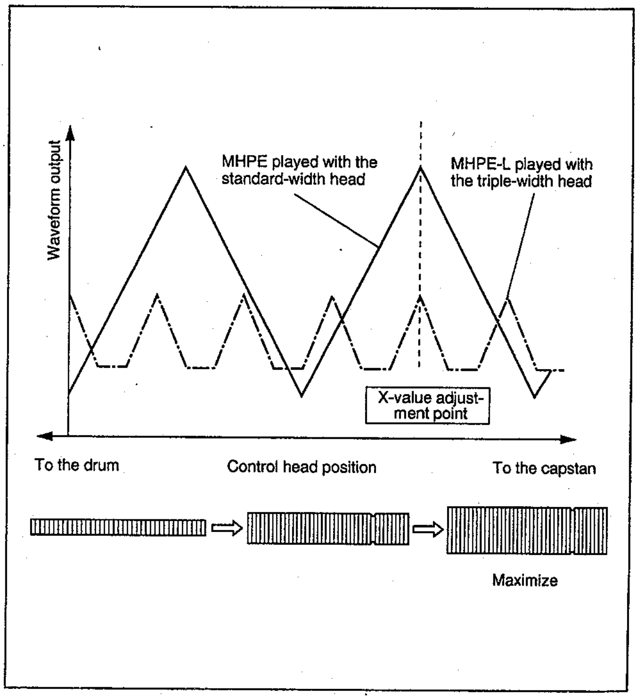


Fig. 2-3-7

2.3.4 Checking/Adjustment of the Standard Tracking Preset

Note: *Depress the "A" button on the presetting unit to the VCR to "code receive" mode.*

(1) Connect the oscilloscope to TP106(PB.FM) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
(2) Playing the alignment tape (EP) and observing the FM waveform, make sure that the auto tracking operation is complete.
(3) Press the "D" button of the presetting unit twice.
(4) Make sure that the tape (EP) is not ejected.
(5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.3.5 Checking/Adjustment of the Tension Pole

(1) Check the back tension cassette gauge to make sure that the indicator points to 25 - 51 gf•cm.
(2) If the indicated value is outside this range, carry out the following adjustment steps.
   1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE.)
   2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-3-8.)

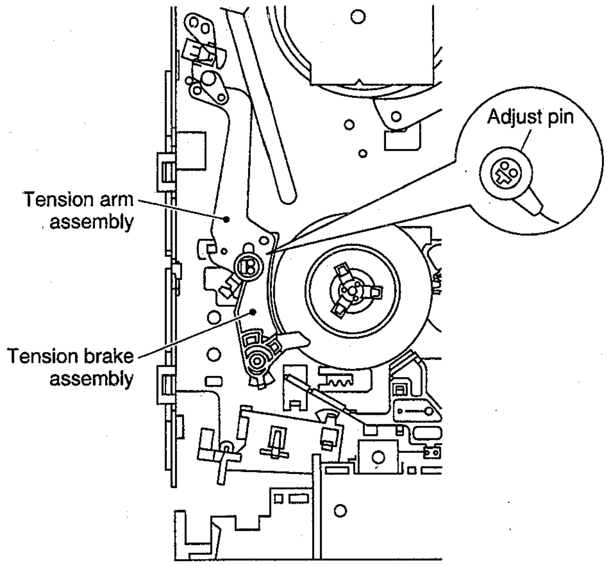


Fig. 2-3-8

2.3.6 Adjustment of the Tension Stud

(1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck. (See Fig. 2-3-9.)

Note: *Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.*

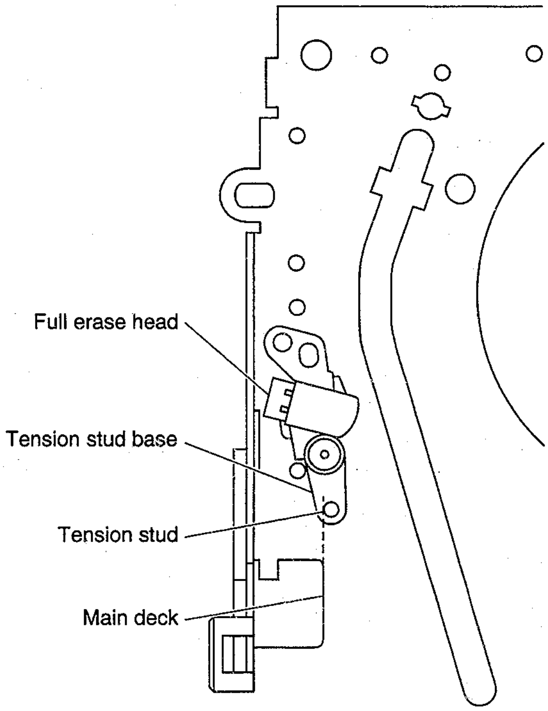


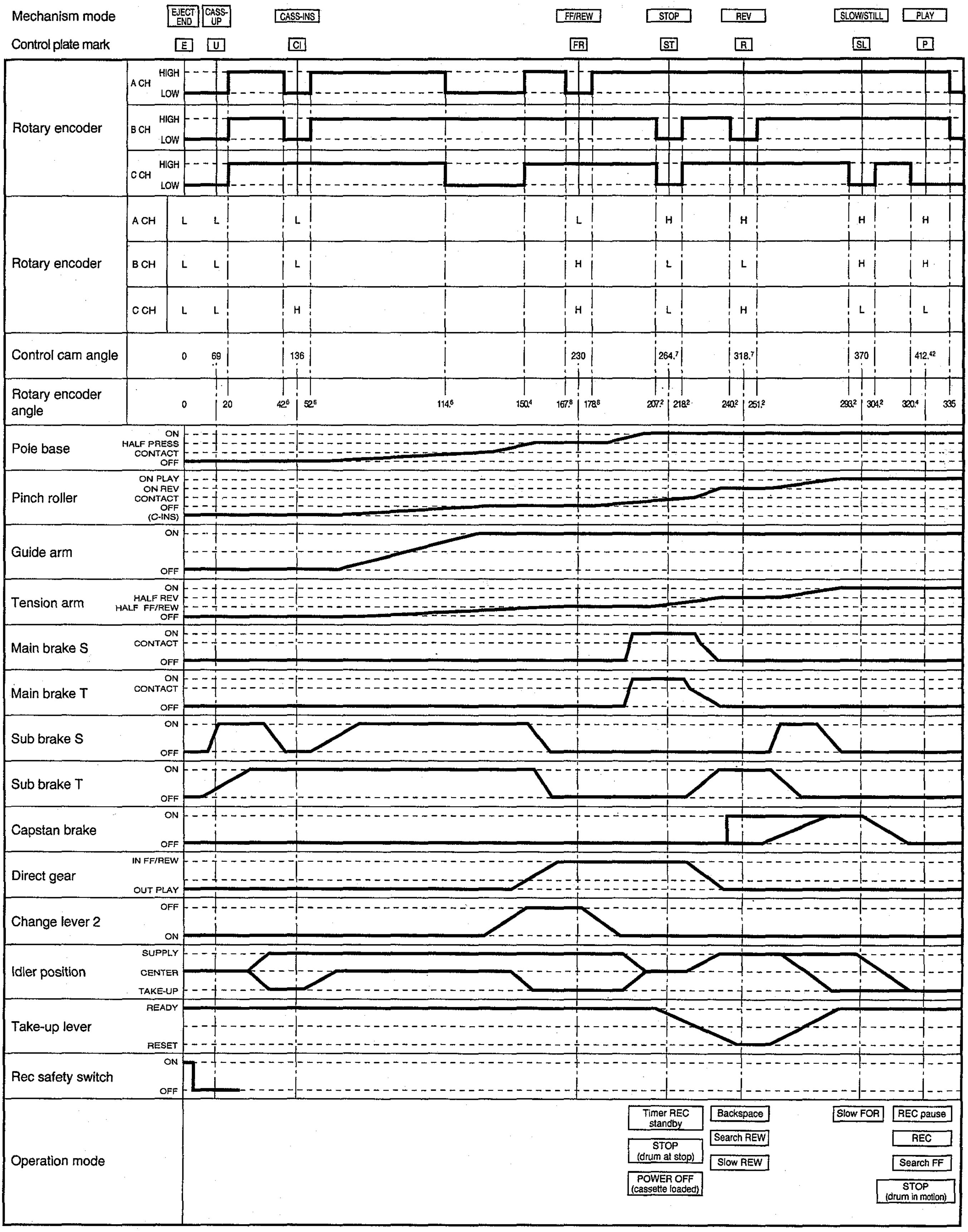
Fig. 2-3-9

2.3.7 Main Brake Torque Adjustment

Note: *Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake assembly or the reel disk on the supply or take-up side have been replaced, removed or attached.*

(1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
(2) Insert a torque gauge into the reel disk on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel disk starts to slip.
(3) Make sure that the main brake torque values on the supply and take-up sides are both between $23.^5$ — $78.^4$ x 10^{-3} N•m (240 — 800 gf•cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin.
If an adjustment by using the adjustment pin is not possible, replace the main brake assembly.

Mechanism Timing Chart


Mechanism mode
EJECT END
CASS-UP
CASS-INS
FF/REW
STOP
REV
SLOW/STILL
PLAY
Control plate mark
E
U
CI
FR
ST
R
SL
P
Rotary encoder
A CH
B CH
C CH
HIGH
LOW
L L L L H H H
L L L H L L H H
L L H H L H L L
Control cam angle
0
69
136
230
264.7
318.7
370
412.42
Rotary encoder angle
0
20
42.6
52.6
114.6
150.4
167.8
178.8
207.2
218.2
240.2
251.2
293.2
304.2
320.4
335
Pole base
ON
HALF PRESS
CONTACT
OFF
Pinch roller
ON PLAY
ON REV
CONTACT
OFF
(C-INS)
Guide arm
ON
OFF
Tension arm
ON
HALF REV
HALF FF/REW
OFF
Main brake S
ON
CONTACT
OFF
Main brake T
ON
CONTACT
OFF
Sub brake S
ON
OFF
Sub brake T
ON
OFF
Capstan brake
ON
OFF
Direct gear
IN FF/REW
OUT PLAY
Change lever 2
OFF
ON
Idler position
SUPPLY
CENTER
TAKE-UP
Take-up lever
READY
RESET
Rec safety switch
ON
OFF
Operation mode
Timer REC standby
STOP (drum at stop)
POWER OFF (cassette loaded)
Backspace
Search REW
Slow REW
Slow FOR
REC pause
REC
Search FF
STOP (drum in motion)

SECTION 3
ELECTRICAL ADJUSTMENT

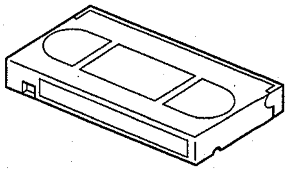
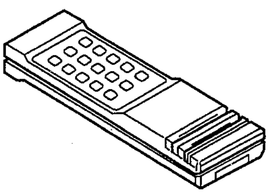
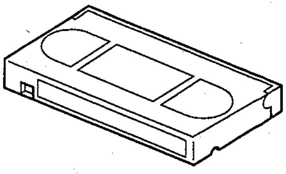
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Signal generator: RF/IF sweep/marker
⑤ Signal generator: PAL colour bar, stairstep
⑥ Recording tape (VHS tape/S-VHS tape)
⑦ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) 4822 397 30262	Presetting unit 4822 395 90915
	
Alignment tape (S-VHS, SP/LP, colour bar)	
	

3.1.3 Colour bar signal,colour bar pattern

- PAL colour bar signal

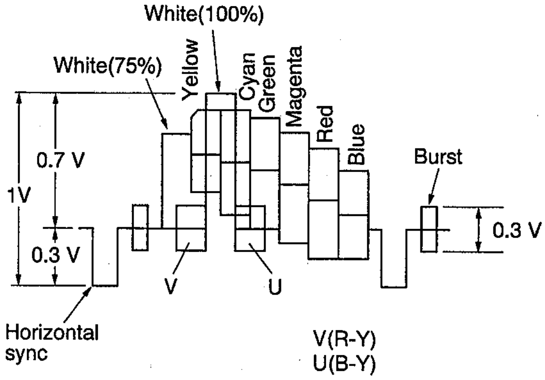

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1V
0.3 V
0.3 V
V
U
Horizontal sync
V(R-Y)
U(B-Y)

Fig.3-1-1 PAL colour bar signal waveform

- PAL colour bar pattern

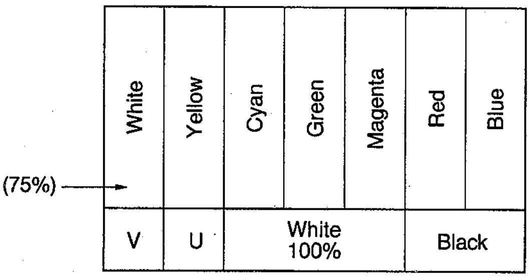

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White 100%
Black

Fig.3-1-2 PAL colour bar pattern

Note:

*The system control circuit of this model has an automatic recognition about the ON-OFF control of the **DOCTOR SYSTEM.***

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Depress the "A" button on the presetting unit to the VCR to "code receive" mode.*

3.2.1 PB switching point

Signal - (SP) 4822 397 30262	• Alignment tape [MHPE], Stairstep • Alignment tape [MHP], Stairstep
Mode	• PB • TBC : OFF
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (-)	• TP111(D.FF)
Adjustment tool	• Presetting unit
Specification	• 8.0 ± 0.5H [MHPE] • 7.5 ± 0.5H [MHP]

Note: • *Use only the "E" and "F" buttons, depressing other buttons during adjustment may cause adjustment errors.*

(1) Playback the stairstep signal of the alignment tape (SP).
(2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
(3) Adjust by pressing the "E" or "F" buttons of the presetting unit so that the switching point becomes 8.0 ± 0.5H from V.sync.
(4) Depress the STOP button.
(5) Playback the stairstep signal of the alignment tape (SP).
(6) Adjust by pressing the "E" or "F" buttons of the presetting unit so that the switching point becomes 7.5 ± 0.5H from V.sync.
(7) Depress the STOP button.

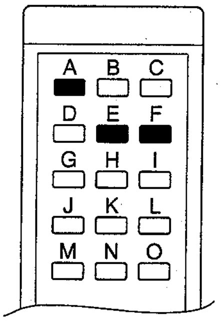


Fig. 3-2-1 Presetting unit

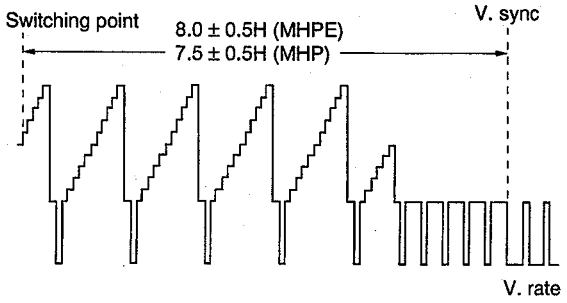


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP : REC → PB(SLOW) • S-VHS
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit
Specification	• Minimum noise

Note: • *Use only the "B" and "C" buttons, depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback the recorded signal on the FWD slow mode.
(3) Set the tracking control to the centre position by simultaneously pressing the CH "▲" and "▼" buttons.
(4) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing the "B " or "C" buttons of the presetting unit.
(5) Depress the STOP button.
(6) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(7) Repeat steps (2) to (6) in the REV slow mode.
(8) Repeat steps (1) to (7) in the LP mode.

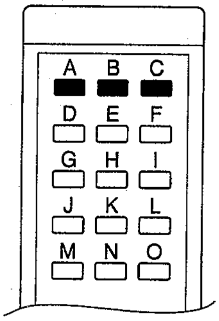


Fig. 3-2-3 Presetting unit

3.3 VIDEO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.*
- *S-INPUT means Y/C separated video signal in the chart.*
- *Depress the "A" button on the presetting unit to the VCR to "code receive" mode.*
- *Unless otherwise specified, set the VCR to the following mode.*

PICTURE CONTROL	NATURAL
TBC	ON

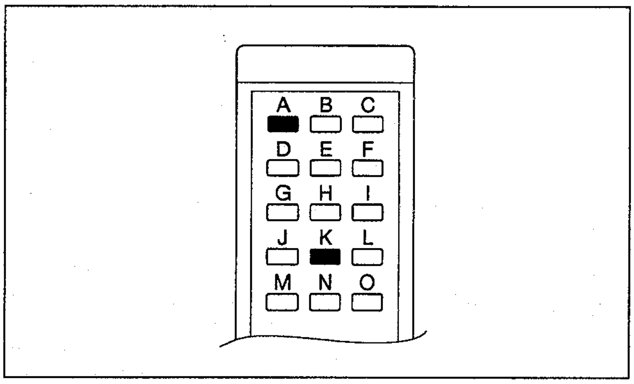


Fig. 3-3-1 Presetting unit

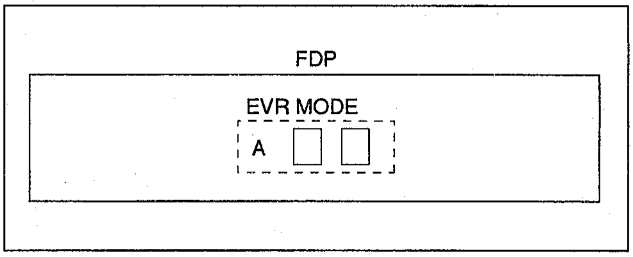


Fig. 3-3-2 EVR mode

3.3.1 EE Y level

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.

(2) Set the EVR mode by pressing the "K" button of the presetting unit.

(3) Set "A : 11" by twice pressing 1 button of the remote controller.

(4) Adjust the CH "▲" or "▼" buttons for 1.00 ± 0.03 Vp-p. (See Fig. 3-3-3.)

(5) Set the normal VCR mode by pressing the "K" button of the presetting unit again so adjustment data is memorized.

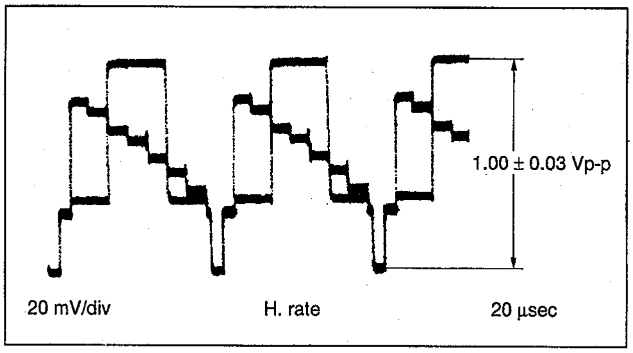


Fig. 3-3-3 EE Y level

3.3.2 SP/EP REC colour level

Signal	• Alignment tape [MH-2H] • Colour bar
Mode	• PB • REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB COLOUR
Trigger slope (–)	• TP111 (D.FF)
Adjustment tool	• Presetting unit • Digit-key remote controller • LPF fixture
EVR mode	• A : 2
Specification	• "B" x 150 ± 5% : SP • "B" x 110 ± 5% : LP

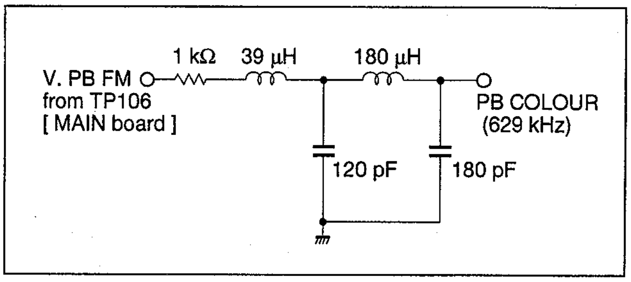


Fig. 3-3-4 LPF

(1) Connect an oscilloscope to PB COLOUR of a LPF (refer to Fig. 3-3-4) and TP111 (negative slope) on the MAIN board.

(2) Playback the SP colour bar signal of the MH-2H alignment tape.

(3) Adjust by pressing the CH "▲" or "▼" buttons of the Front panel for maximum level of the color waveform and make a note of the higher colour level "B".

(4) Press the STOP/EJECT button and eject the MH-2H alignment tape.

(5) Set the EVR mode by pressing the "K" button of the presetting unit.

(6) Set "A : 2" by pressing 2 button of the remote controller.

(7) Before recording, adjust the CH "▲" or "▼" buttons of the remote controller so that the higher level channel becomes 150 ± 5% : SP (110 ± 5% : LP) of the note "B" level during playback as shown in Fig. 3-3-5.

(8) Record a colour bar signal in the SP (LP) mode, and playback the recorded colour bar signal.

(9) Set the normal VCR mode by pressing the "K" button again so adjustment data is memorized.

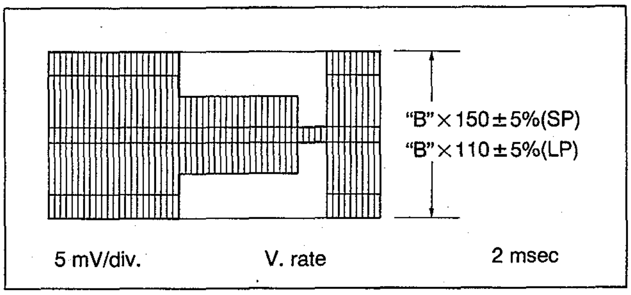


Fig. 3-3-5 REC colour level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Colour bar
Mode	• REC → PB : SP • S-VHS/VHS
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.

(2) Set the EVR mode by pressing the "K" button of the presetting unit.

(3) Set "A : 11" by twice pressing 1 button of the remote controller.

(4) Record a colour bar signal in the S-VHS mode, and playback the recorded colour bar signal.

(5) Adjust the CH "▲" or "▼" buttons for 1.00 ± 0.03 Vp-p as shown in Fig. 3-3-6.

(6) Set the normal VCR mode by pressing the "K" button of the presetting unit again so adjustment data is memorized.

(7) Repeat steps (1) to (6) in the VHS mode.

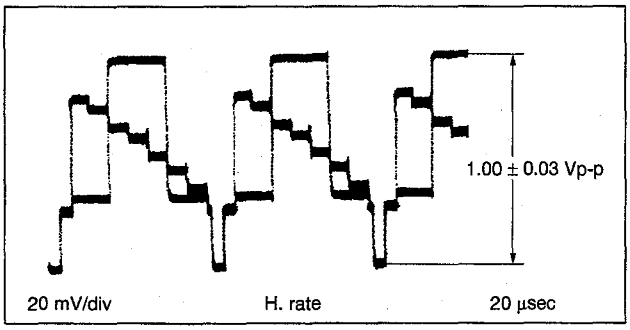


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL (75 ohm TERMINATION)
Trigger slope (–)	• TP111 (D.FF)
Adjustment tool	• Presetting unit • Digit-key remote controller
Specification	• 3.6 ± 0.4 scale : SP • 3.2 ± 0.4 scale : LP

(1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).

(2) Record a video sweep signal in the S-VHS SP mode, then play it back.

(3) Set the EVR mode by pressing the "K" button of the presetting unit.

(4) Set "A : 3" by pressing 3 button of the remote controller.

(5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust the CH "▲" or "▼" buttons on the front panel or the Digit-key remote controller so that the 3 MHz is set at 3.6 ± 0.4 scale (–1 ± 1.0 dB) while observing Y OUT of the S output. (See Fig. 3-3-7.)

(6) Set the normal VCR mode by pressing the "K" button of the presetting unit again so adjustment data is memorized.

(7) Carry out the step (3) and (4) in the S-VHS LP mode.

(8) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust the CH "▲" or "▼" buttons on the front panel or the Digit-key remote controller so that the 3 MHz is set at 3.2 ± 0.4 scale (–2 ± 1.0 dB) while observing Y OUT of the S output. (See Fig. 3-3-7.)

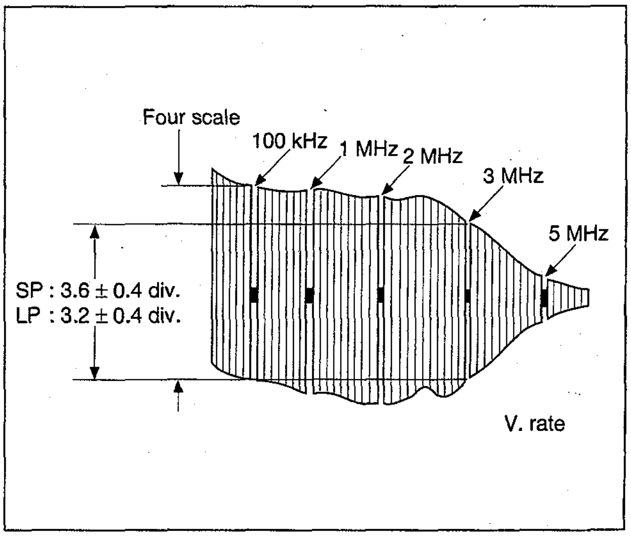


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	• Colour bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• CN1003-3 pin (Y OUT) [3D SVHS board]
Adjustment part	• VR1401 (D/A LEVEL) [3D SVHS board]
Specification (NOTE)	• 2.05 Vp-p (REFERENCE VALUE)

(1) Connect the oscilloscope to the CN1003-3 pin(Y OUT) on the 3D SVHS board.
(2) Confirm the Y level value during external S input.
(3) Switch the input signal to the external input, then adjust the VR1401 on the 3D SVHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • *The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).*

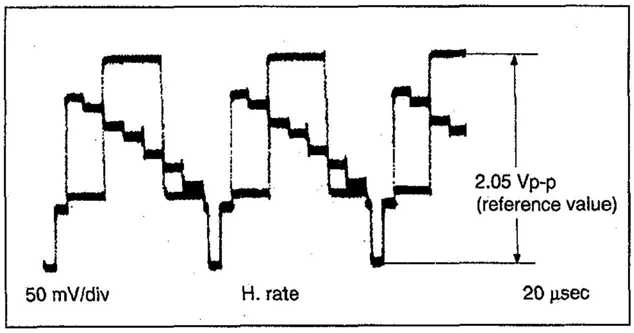


Fig. 3-3-8 D/A LEVEL

3.3.6 Pilot burst level

Signal	• Colour bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP1001 (FSC PHASE) [3D SVHS board]
Adjustment part	• VR1002 (P. BURST LEVEL) [3D SVHS board]
Specification	• "B" x 110 ± 10%

(1) Connect the oscilloscope to the TP1001 (FSC PHASE) on the 3D SVHS board.
(2) Load an S-VHS tape then set the unit to the S-VHS EE mode.
(3) Adjust the VR1002 of the 3D SVHS so that the pilot burst level becomes "B" x 110 ±10% against the value of the burst level "B".

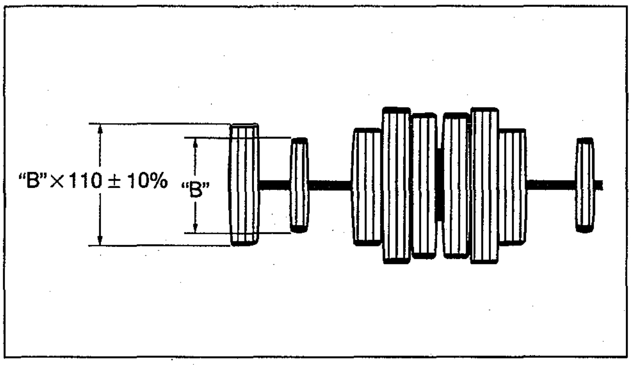


Fig. 3-3-9 PILOT BURST LEVEL

3.4 AUDIO CIRCUIT

Notes:
- *Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.*
- *This adjustment should be done after the video circuit SP and LP REC colour level are adjusted.*
- *GND(Ground) should be taken from the tuner board shield.*

3.4.1 REC FM level

Signal	• AUX • VIDEO : Colour bar • AUDIO : No signal
Mode	• REC → PB : LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP2253 (A. PB FM)
Trigger slope (−)	• TP111 (D. FF)
Adjustment part	• VR2251 (A. REC. FM)
Specification	• 600 ± 100 mVp-p

(1) Connect an oscilloscope to TP2253.
(2) Record a colour bar signal without an audio signal in the S-VHS LP mode then playback.
(3) Adjust VR2251 for 600mVp-p playback level of higher channel level before recording.
(4) Confirm that the lower channel level is more than 450 mVp-p.

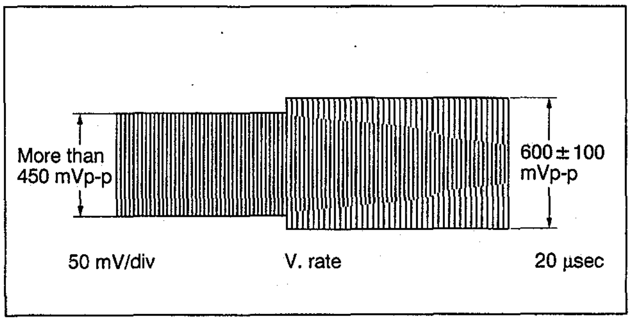


Fig. 3-4-1 Audio REC FM level

3.5 SYSCON CIRCUIT

Notes: • ***Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.***
- ***When perform this adjustment,remove the MECHANISM assembly.***

3.5.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• IC3001-PIN61
Adjustment part	• C3025 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μsec.]

(1) Connect the frequency counter to IC3001-PIN61.
(2) Connect the short wire between IC3001-PIN24 and Vcc(5V).
(3) Short the leads of capacitor C3026 once in order to reset IC3001.
(4) Disconnect the short wire between IC3001-PIN24 and Vcc then connect it again.
(5) Adjust C3025 trimmer capacitor so that the output from IC3001-PIN61 falls within 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μsec.) range.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

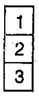
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: K (1000), M: M (1000K)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

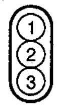
AUX : Active at high

$\overline{\text{AUX}}$ or AUX(L) : Active at low

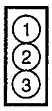
3. Interpreting Connector indications



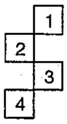
Removable connector



Wire soldered directly on board



Non-removable Board connector

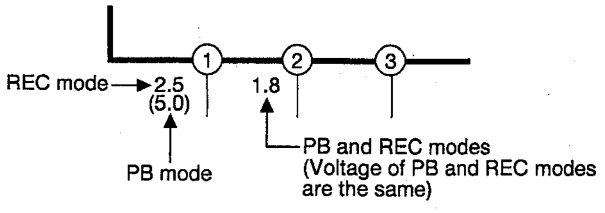


Board to Board

→
←
↔ } Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

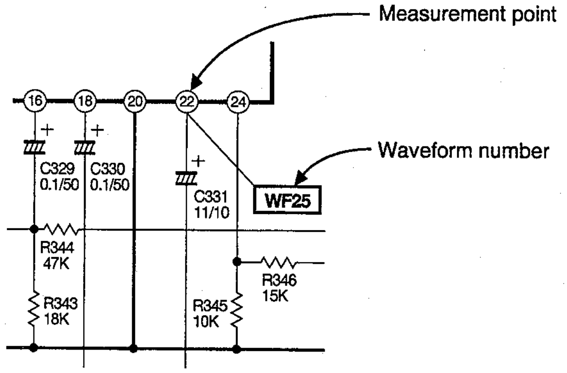
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

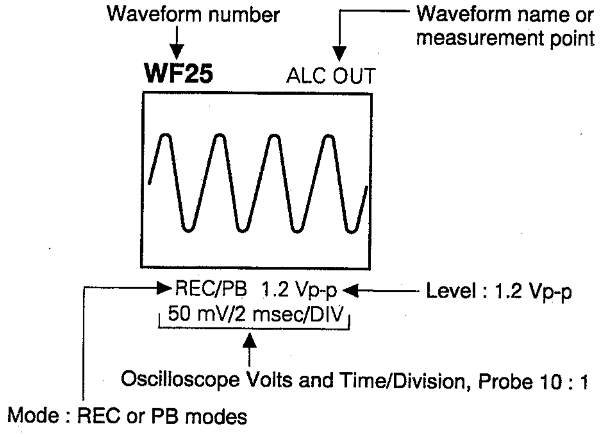
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
Waveform number
16
18
20
22
24
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
50 mV/2 msec/DIV
Level : 1.2 Vp-p
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

⇨ Playback signal path

➡ Playback and recording signal path

➡ Recording signal path (including E-E signal path)

⇨▷ Capstan servo path

➡▶ Drum servo path

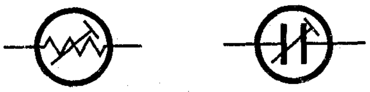
(Example)

⇨ R-Y Playback R-Y signal path

➡ Y Recording Y signal path

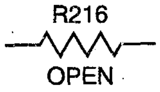
7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



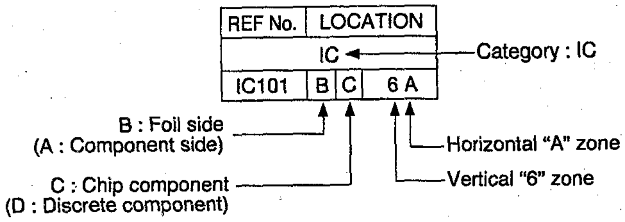
CIRCUIT BOARD NOTES

1. Foil and Component sides

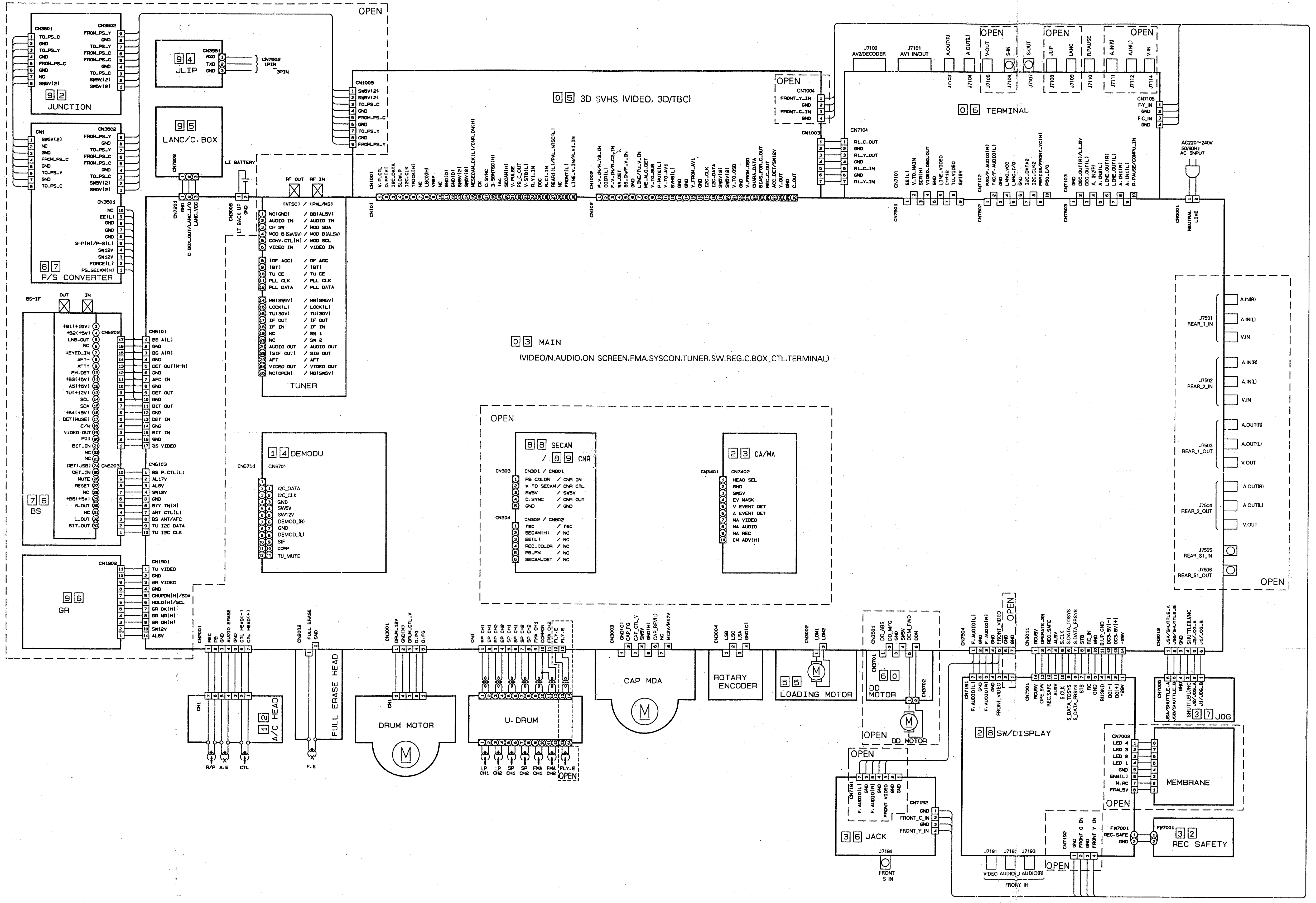
1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

Parts location are indicated by guide scale on the circuit board.

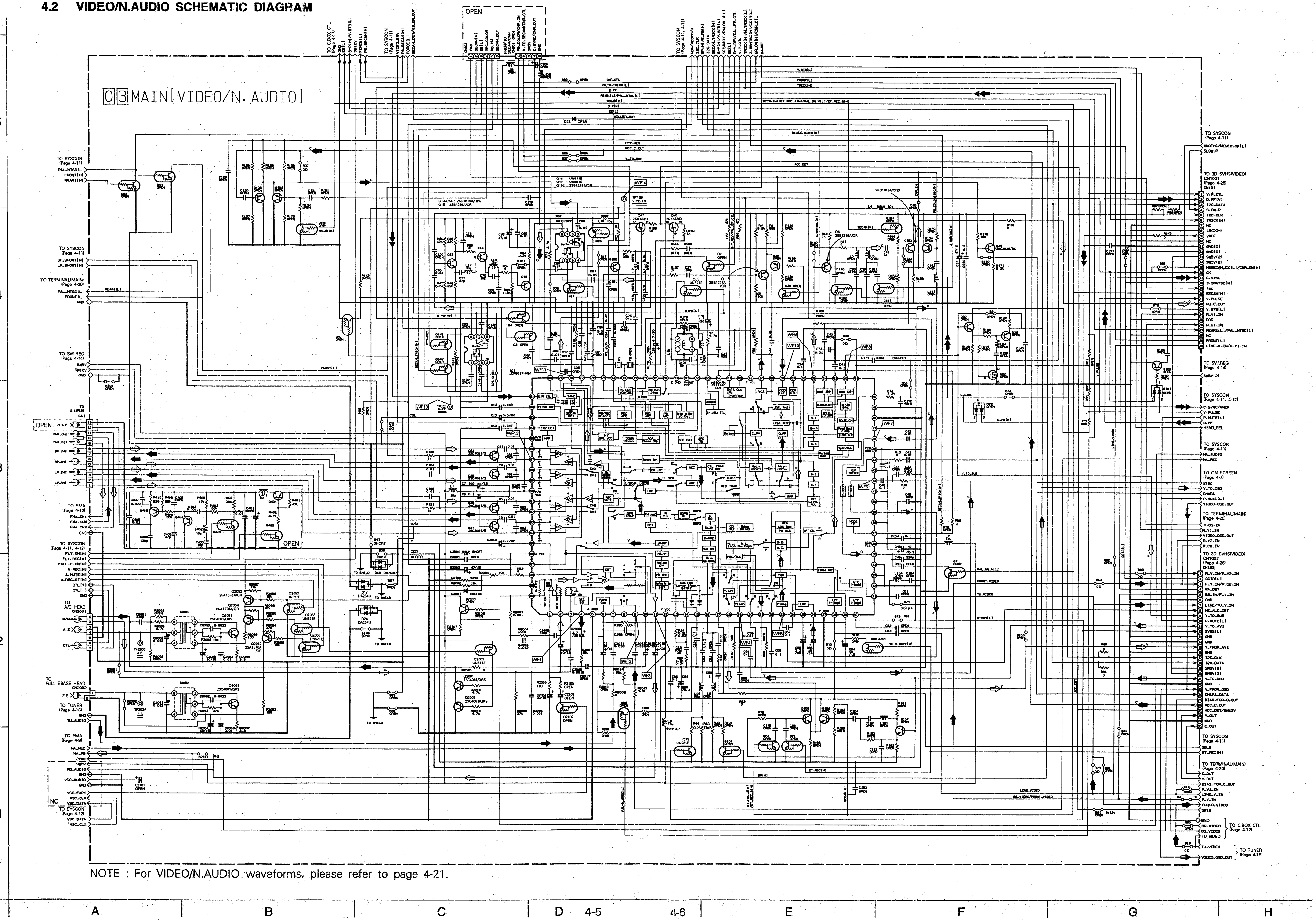

REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
(D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

4.1 BOARD INTERCONNECTIONS


OPEN
9 2 JUNCTION
CN3601
CN3602
9 4 JLIP
CN3951
CN7502
9 5 LANC/C. BOX
CN7202
LI BATTERY
8 7 P/S CONVERTER
CN1005
0 5 3D SVHS (VIDEO, 3D/TBC)
CN1004
CN1003
0 6 TERMINAL
J7102 AV2/DECODER
J7101 AV1 IN/OUT
CN7104
CN7105
AC220~240V 50/60Hz AC INPUT
CN5001
TUNER
RF OUT
RF IN
(NTSC) / (PAL/MS)
CN1001
CN1002
CN7101
CN7102
CN7103
BS-IF
7 6 BS
CN6202
CN6203
CN5101
CN5103
0 3 MAIN
(VIDEO/N.AUDIO.ON SCREEN.FMA.SYSCON.TUNER.SW.REG.C.BOX_CTL.TERMINAL)
1 4 DEMODU
CN6701
8 8 SECAM / 8 9 CNR
CN303
CN304
CN301 / CN801
CN302 / CN802
2 3 CA/MA
CN3401
CN7402
J7501 REAR_1_IN
J7502 REAR_2_IN
J7503 REAR_1_OUT
J7504 REAR_2_OUT
J7505 REAR_S1_IN
J7506 REAR_S1_OUT
9 6 GR
CN1902
CN1901
CN2001
1 2 A/C HEAD
R/P
A-E
CTL
CN2002
FULL ERASE HEAD
F.E
CN3001
DRUM MOTOR
CN1
U. DRUM
CN3003
CAP MDA
CN3004
ROTARY ENCODER
CN3002
5 5 LOADING MOTOR
CN3501
6 0 DD MOTOR
CN3701
CN3702
DD MOTOR
CN7504
CN7011
CN7012
CN7001
2 8 SW/DISPLAY
CN7002
MEMBRANE
3 7 JOG
CN7191
CN7192
3 6 JACK
J7194 FRONT S IN
J7191 J7192 J7193
VIDEO AUDIO(L) AUDIO(R)
FRONT IN
FW7001
3 2 REC SAFETY

NO	NAME
5 5	LOADING MOTOR
3 7	JOG
3 6	JACK
3 2	REC SAFETY
2 8	SW/DISPLAY
1 4	DEMODU
1 2	A/C HEAD
0 6	TERMINAL
0 5	3D SVHS
0 3	MAIN

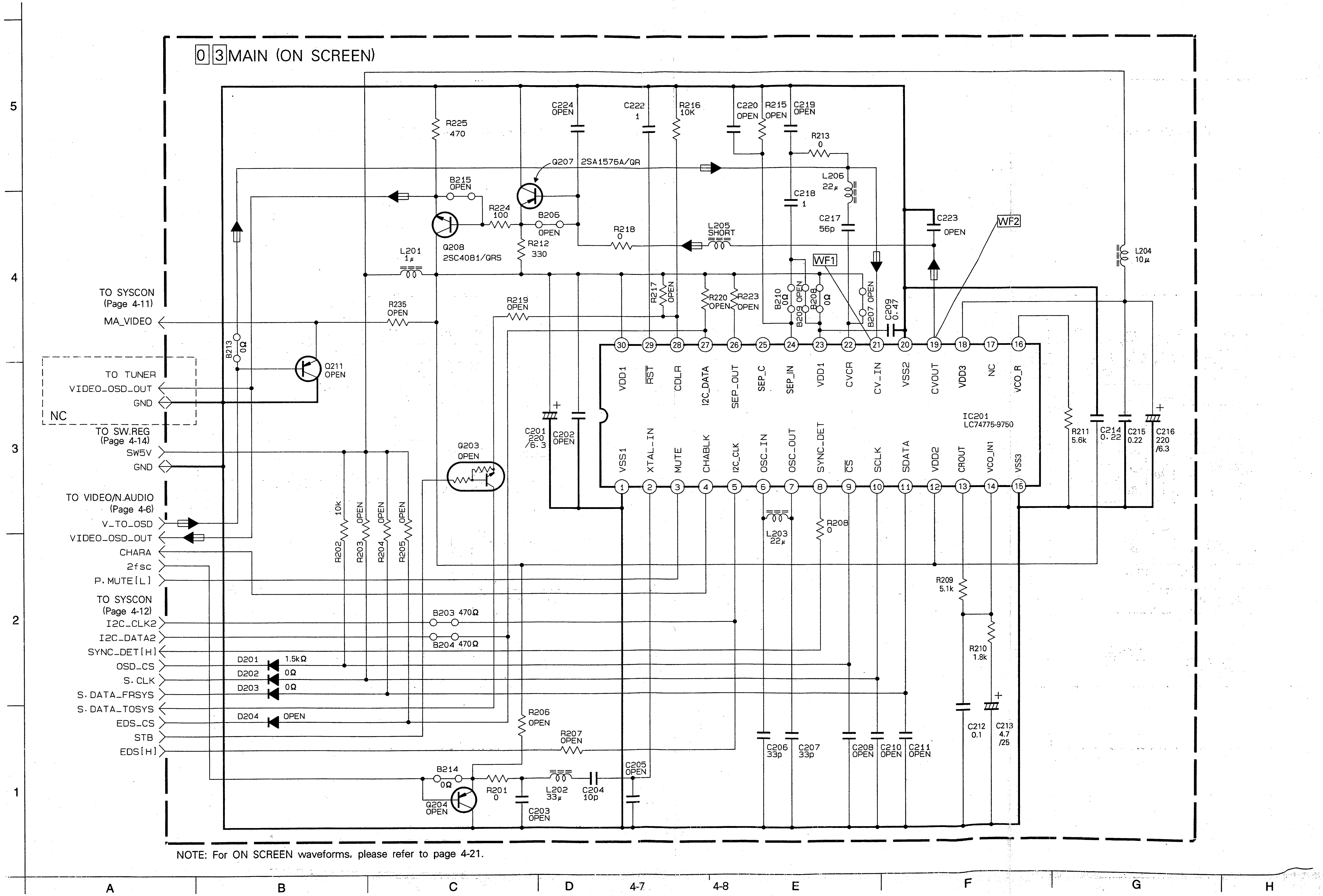
4.2 VIDEO/N.AUDIO SCHEMATIC DIAGRAM



03 MAIN [VIDEO/N. AUDIO]
OPEN
TO SYSCON (Page 4-11)
PAL_NTSC[L]
FRONT[H]
REAR[H]
SP_SHORT[H]
LP_SHORT[H]
TO TERMINAL(MAIN) (Page 4-20)
TO SW.REG (Page 4-14)
SW5V
SW12V
GND
TO U-DRUM CN1
TO FMA (Page 4-10)
FMA_CH1
FMA_COM
FMA_CH2
TO A/C HEAD CN2001
TO FULL ERASE HEAD CN2002
TO TUNER (Page 4-16)
TU_AUDIO
NA_REC
NA_PB
NC
VSC_CLK
VSC_DATA
TO 3D SVHS(VIDEO) CN1001 (Page 4-25)
TO 3D SVHS(VIDEO) CN1002 (Page 4-26)
TO ON SCREEN (Page 4-7)
TO C.BOX CTL (Page 4-17)
IC1 JCA8017-MBA
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
TO SHIELD
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : For VIDEO/N.AUDIO waveforms, please refer to page 4-21.

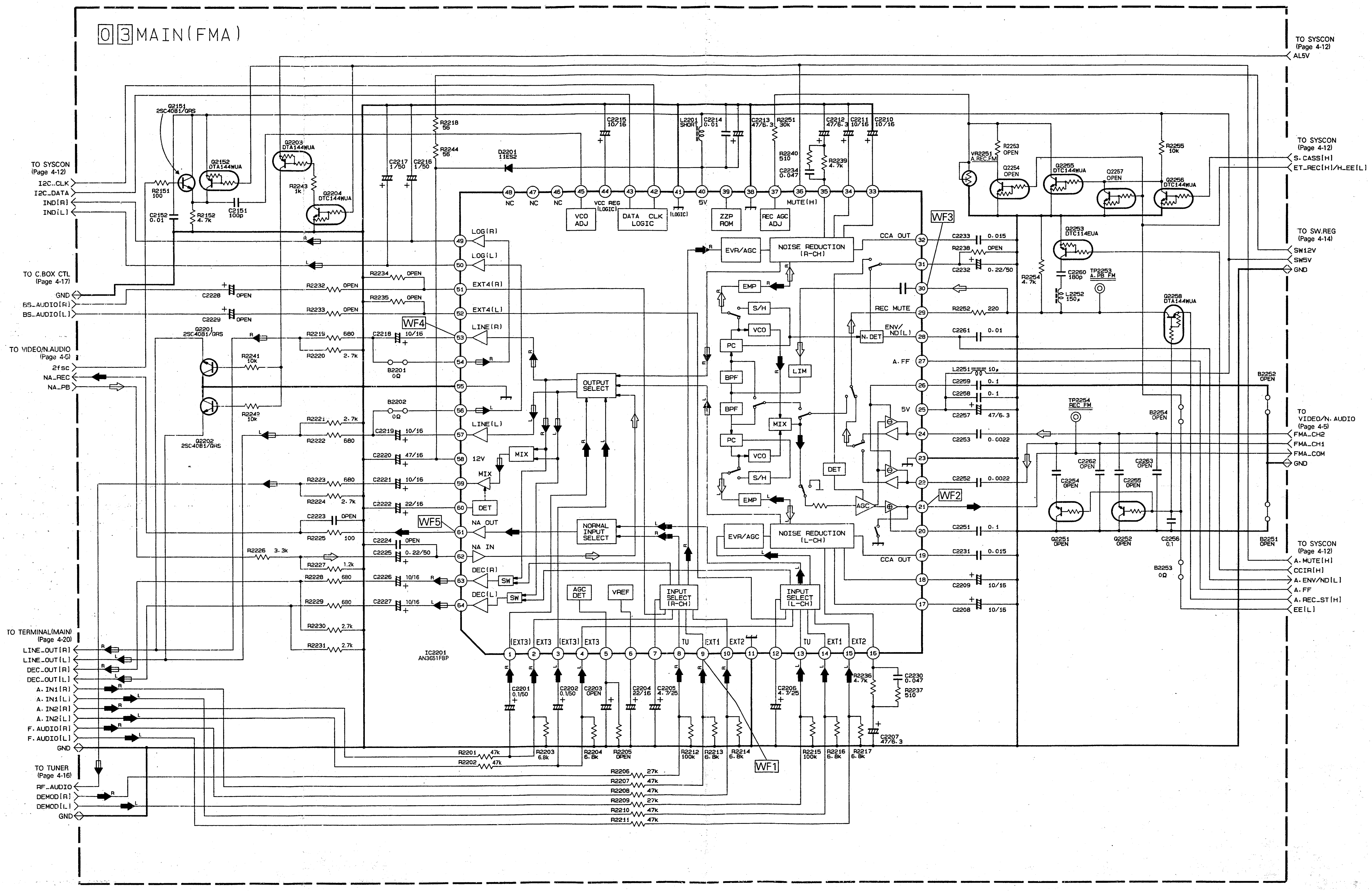
4.3 ON SCREEN SCHEMATIC DIAGRAM



03 MAIN (ON SCREEN)
5
4
3
2
1
A
B
C
D
E
F
G
H
TO SYSCON
(Page 4-11)
MA_VIDEO
TO TUNER
VIDEO_OSD_OUT
GND
NC
TO SW.REG
(Page 4-14)
SW5V
GND
TO VIDEO/N.AUDIO
(Page 4-6)
V_TO_OSD
VIDEO_OSD_OUT
CHARA
2fsc
P.MUTE[L]
TO SYSCON
(Page 4-12)
I2C_CLK2
I2C_DATA2
SYNC_DET[H]
OSD_CS
S.CLK
S.DATA_FRSYS
S.DATA_TOSYS
EDS_CS
STB
EDS[H]
R225 470
Q207 2SA1576A/QR
B215 OPEN
R224 100
B206 OPEN
Q208 2SC4081/QRS
R212 330
L201 1μ
R235 OPEN
R219 OPEN
B213 0Ω
Q211 OPEN
Q203 OPEN
C224 OPEN
C222 1
R216 10K
C220 OPEN
R215 OPEN
C219 OPEN
R213 0
L206 22μ
C218 1
C217 56p
R218 0
L205 SHORT
C223 OPEN
WF2
WF1
L204 10μ
R217 OPEN
R220 OPEN
R223 OPEN
B210 0Ω
B209 OPEN
B208 0Ω
B207 OPEN
C209 0.47
C201 220 /6.3
C202 OPEN
IC201 LC74775-9750
30 VDD1
29 RST
28 CDLR
27 I2C_DATA
26 SEP_OUT
25 SEP_C
24 SEP_IN
23 VDD1
22 CVCR
21 CV_IN
20 VSS2
19 CVOUT
18 VDD3
17 NC
16 VCO_R
1 VSS1
2 XTAL_IN
3 MUTE
4 CHABLK
5 I2C_CLK
6 OSC_IN
7 OSC_OUT
8 SYNC_DET
9 CS
10 SCLK
11 SDATA
12 VDD2
13 CROUT
14 VCO_IN1
15 VSS3
R211 5.6k
C214 0.22
C215 0.22
C216 220 /6.3
R202 10k
R203 OPEN
R204 OPEN
R205 OPEN
L203 22μ
R208 0
R209 5.1k
R210 1.8k
B203 470Ω
B204 470Ω
D201 1.5kΩ
D202 0Ω
D203 0Ω
D204 OPEN
R206 OPEN
R207 OPEN
C212 0.1
C213 4.7 /25
C206 33p
C207 33p
C208 OPEN
C210 OPEN
C211 OPEN
C205 OPEN
B214 0Ω
Q204 OPEN
R201 0
L202 33μ
C204 10p
C203 OPEN

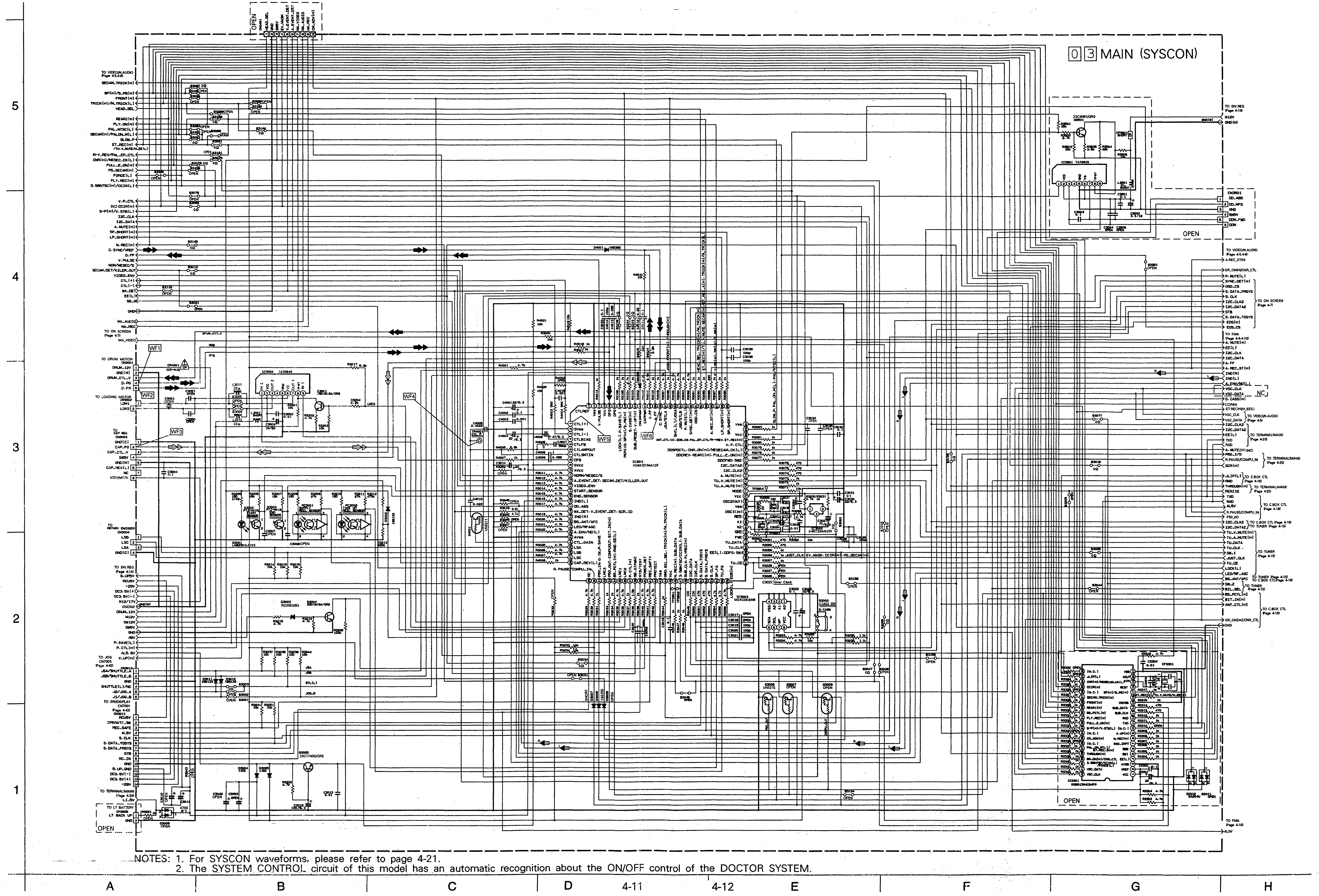
NOTE: For ON SCREEN waveforms, please refer to page 4-21.

4.4 FMA SCHEMATIC DIAGRAM


03 MAIN(FMA)
TO SYSCON (Page 4-12)
I2C_CLK
I2C_DATA
IND[R]
IND[L]
TO C.BOX CTL (Page 4-17)
GND
BS_AUDIO[R]
BS_AUDIO[L]
TO VIDEO/N.AUDIO (Page 4-5)
2fsc
NA_REC
NA_PB
TO TERMINAL(MAIN) (Page 4-20)
LINE_OUT[R]
LINE_OUT[L]
DEC_OUT[R]
DEC_OUT[L]
A.IN1[R]
A.IN1[L]
A.IN2[R]
A.IN2[L]
F.AUDIO[R]
F.AUDIO[L]
GND
TO TUNER (Page 4-16)
RF_AUDIO
DEMOD[R]
DEMOD[L]
GND
Q2151 2SC4081/QRS
Q2152 DTA144WUA
Q2203 DTA144WUA
Q2204 DTC144WUA
Q2201 2SC4081/QRS
Q2202 2SC4081/QRS
R2151 100
C2152 0.01
R2152 4.7k
C2151 100p
R2243 1k
R2218 56
R2244 56
D2201 11ES2
C2217 1/50
C2216 1/50
C2228 OPEN
C2229 OPEN
R2241 10k
R2242 10k
R2232 OPEN
R2233 OPEN
R2234 OPEN
R2235 OPEN
R2219 680
R2220 2.7k
C2218 10/16
B2201 0Ω
B2202 0Ω
R2221 2.7k
R2222 680
C2219 10/16
C2220 47/16
R2223 680
R2224 2.7k
C2221 10/16
C2222 22/16
C2223 OPEN
R2225 100
C2224 OPEN
C2225 0.22/50
R2226 3.3k
R2227 1.2k
R2228 680
C2226 10/16
R2229 680
C2227 10/16
R2230 2.7k
R2231 2.7k
IC2201 AN3651FBP
WF4
WF5
WF3
WF2
WF1
LOG(R)
LOG(L)
EXT4(R)
EXT4(L)
LINE(R)
LINE(L)
12V
MIX
DET
NA OUT
NA IN
DEC(R)
DEC(L)
SW
OUTPUT SELECT
NORMAL INPUT SELECT
AGC DET
VREF
INPUT SELECT (R-CH)
INPUT SELECT (L-CH)
NC
VCO ADJ
VCC REG (LOGIC)
DATA CLK LOGIC
(LOGIC)
5V
ZZP ROM
REC AGC ADJ
MUTE(H)
C2215 10/16
L2201 SHORT
C2214 0.01
C2213 47/6.3
R2251 30k
R2240 510
C2234 0.047
R2239 4.7k
C2212 47/6.3
C2211 10/16
C2210 10/16
EVR/AGC
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
CCA OUT
EMP
S/H
VCO
PC
BPF
LIM
MIX
DET
AGC
N.DET
REC MUTE
ENV/ND(L)
A.FF
5V
C2233 0.015
R2238 OPEN
C2232 0.22/50
R2252 220
C2261 0.01
L2251 10μ
C2259 0.1
C2258 0.1
C2257 47/6.3
C2253 0.0022
C2252 0.0022
C2251 0.1
C2231 0.015
C2209 10/16
C2208 10/16
(EXT3) EXT3 (EXT3) EXT3
TU EXT1 EXT2
TU EXT1 EXT2
C2201 0.1/50
C2202 0.1/50
C2203 OPEN
C2204 22/16
C2205 4.7/25
C2206 4.7/25
R2236 4.7k
C2230 0.047
R2237 510
C2207 47/6.3
R2201 47k
R2202 47k
R2203 6.8k
R2204 6.8k
R2205 OPEN
R2212 100k
R2213 6.8k
R2214 6.8k
R2215 100k
R2216 6.8k
R2217 6.8k
R2206 27k
R2207 47k
R2208 47k
R2209 27k
R2210 47k
R2211 47k
VR2251 A.REC.FM
R2253 OPEN
Q2254 OPEN
Q2255 DTC144WUA
Q2257 OPEN
R2255 10k
Q2256 DTC144WUA
Q2253 DTC114EUA
R2254 4.7k
C2260 180p
L2252 150μ
TP2253 A.PB FM
Q2258 DTA144WUA
TP2254 REC FM
C2262 OPEN
C2263 OPEN
C2254 OPEN
C2255 OPEN
Q2251 OPEN
Q2252 OPEN
C2256 0.1
B2252 OPEN
B2254 OPEN
B2251 OPEN
B2253 0Ω
TO SYSCON (Page 4-12)
AL5V
TO SYSCON (Page 4-12)
S.CASS[H]
ET_REC[H]/H_EE[L]
TO SW.REG (Page 4-14)
SW12V
SW5V
GND
TO VIDEO/N.AUDIO (Page 4-5)
FMA_CH2
FMA_CH1
FMA_COM
GND
TO SYSCON (Page 4-12)
A.MUTE[H]
CCIR[H]
A.ENV/ND[L]
A.FF
A.REC_ST[H]
EE[L]
1
2
3
4
5
A
B
C
D
E
F
G
H

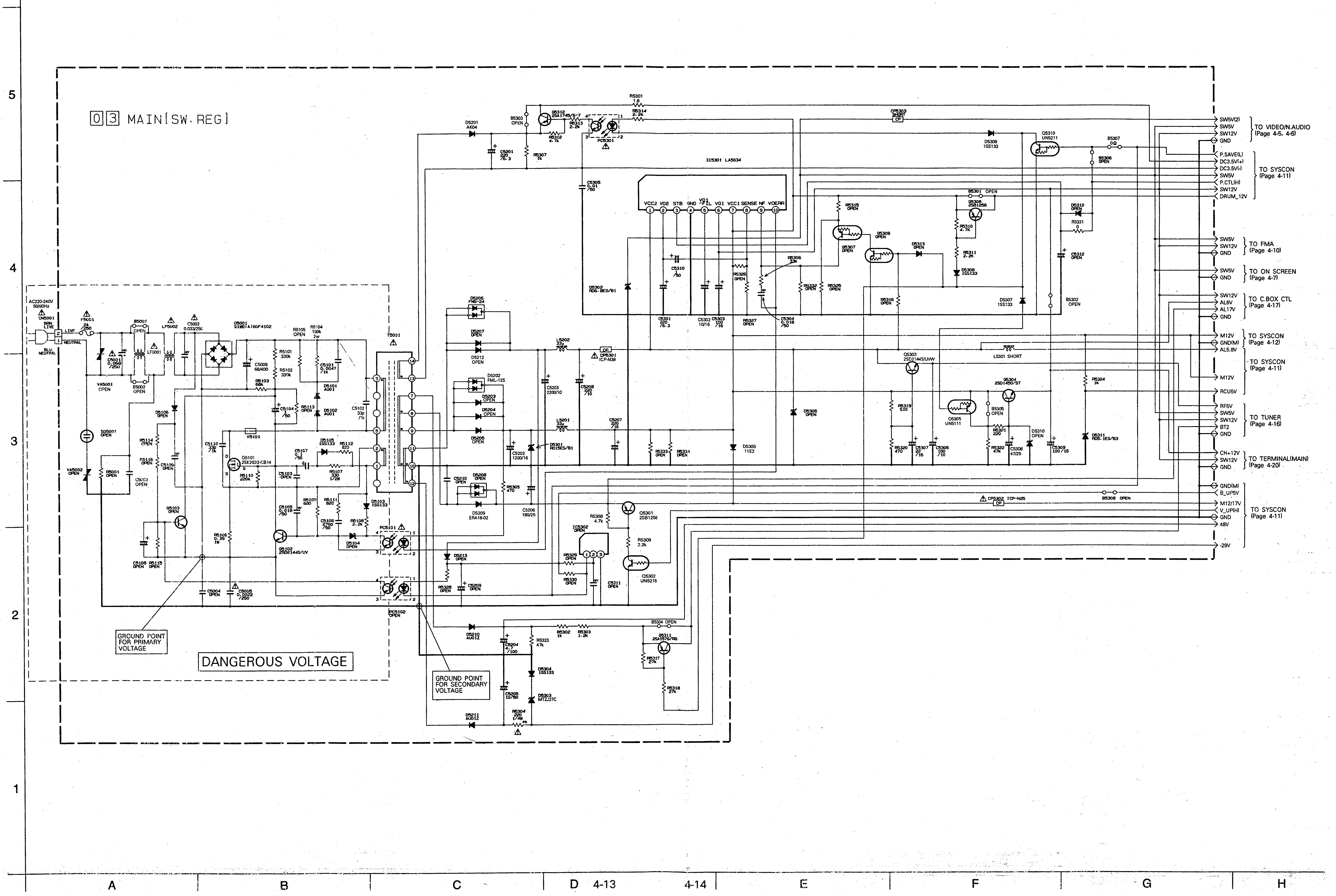
NOTE: For FMA waveforms, please refer to page 4-21.

4.5 SYSTEM CONTROL SCHEMATIC DIAGRAM

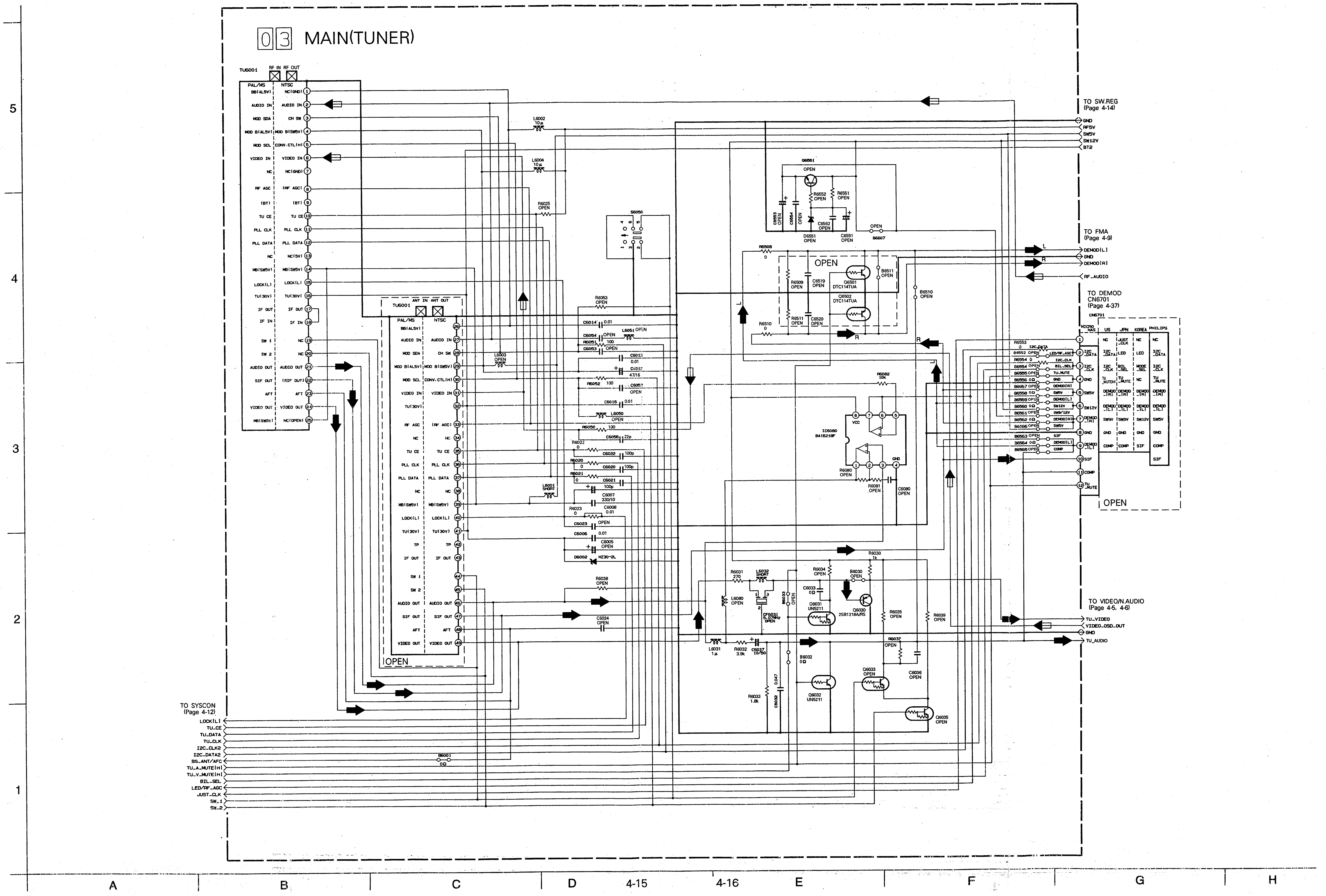

03 MAIN (SYSCON)
IC3001 HD6432194A12F
IC3004 TA7291S
IC3504 TA7291S
IC3301
WF1
WF2
WF3
WF4
WF5
WF6
OPEN
NC
TO VIDEO/AUDIO
TO ON SCREEN
TO DRUM MOTOR
TO LOADING MOTOR
TO ROTARY ENCODER
TO SW.REG
TO JOG
TO SW/DISPLAY
TO TERMINAL(MAIN)
TO LT BATTERY
TO FMA
TO C.BOX CTL
TO TUNER
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES: 1. For SYSCON waveforms, please refer to page 4-21.
2. The SYSTEM CONTROL circuit of this model has an automatic recognition about the ON/OFF control of the DOCTOR SYSTEM.

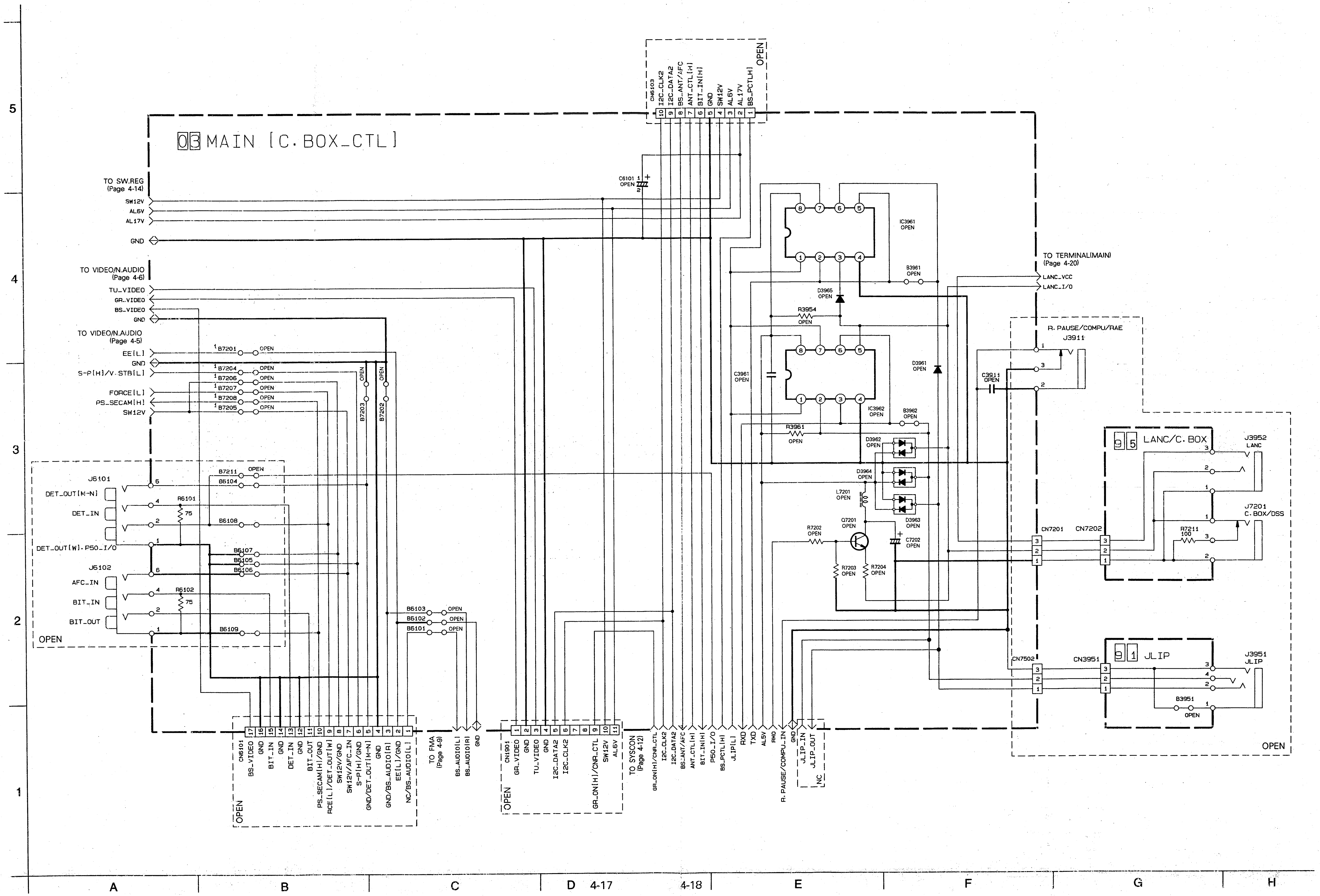
4.6 SWITCHING REGULATOR SCHEMATIC DIAGRAM


03 MAIN[SW.REG]
AC220-240V 50/60Hz
CN5001
LIVE
NEUTRAL
F5001
T5001
IC5301 LA5634
VCC2
VO2
STB
GND
VO1 FIL
VO1
VCC1
SENSE
NF
VOERR
IC5302
PC5101
PC5102
PC5301
Q5101 2SK2632-CB14
Q5102 2SD2144S/UV
Q5301 2SB1256
Q5302 UN5215
Q5303 2SD2144S/UVW
Q5304 2SD1450/ST
Q5305 UN5111
Q5306 2SB1256
Q5310 UN5211
Q5311 2SA1576/RS
Q5312 2SA1745/6-7
L5301 SHORT
CP5301 ICP-N38
CP5302 ICP-N25
CP5303 SHORT
GROUND POINT FOR PRIMARY VOLTAGE
DANGEROUS VOLTAGE
GROUND POINT FOR SECONDARY VOLTAGE
SW5V(2)
SW5V
SW12V
GND
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
P.SAVE(L)
DC3.5V(+)
DC3.5V(-)
SW5V
P.CTL(H)
SW12V
DRUM_12V
TO SYSCON (Page 4-11)
SW5V
SW12V
GND
TO FMA (Page 4-10)
SW5V
GND
TO ON SCREEN (Page 4-7)
SW12V
AL6V
AL17V
GND
TO C.BOX CTL (Page 4-17)
M12V
GND(M)
TO SYSCON (Page 4-12)
AL5.8V
M12V
RCU5V
TO SYSCON (Page 4-11)
RF5V
SW5V
SW12V
BT2
GND
TO TUNER (Page 4-16)
CH+12V
SW12V
GND
TO TERMINAL(MAIN) (Page 4-20)
GND(M)
B_UP5V
M12/17V
V_UP(H)
GND
48V
-29V
TO SYSCON (Page 4-11)
5
4
3
2
1
A
B
C
D
4-13
4-14
E
F
G
H

4.7 TUNER SCHEMATIC DIAGRAM

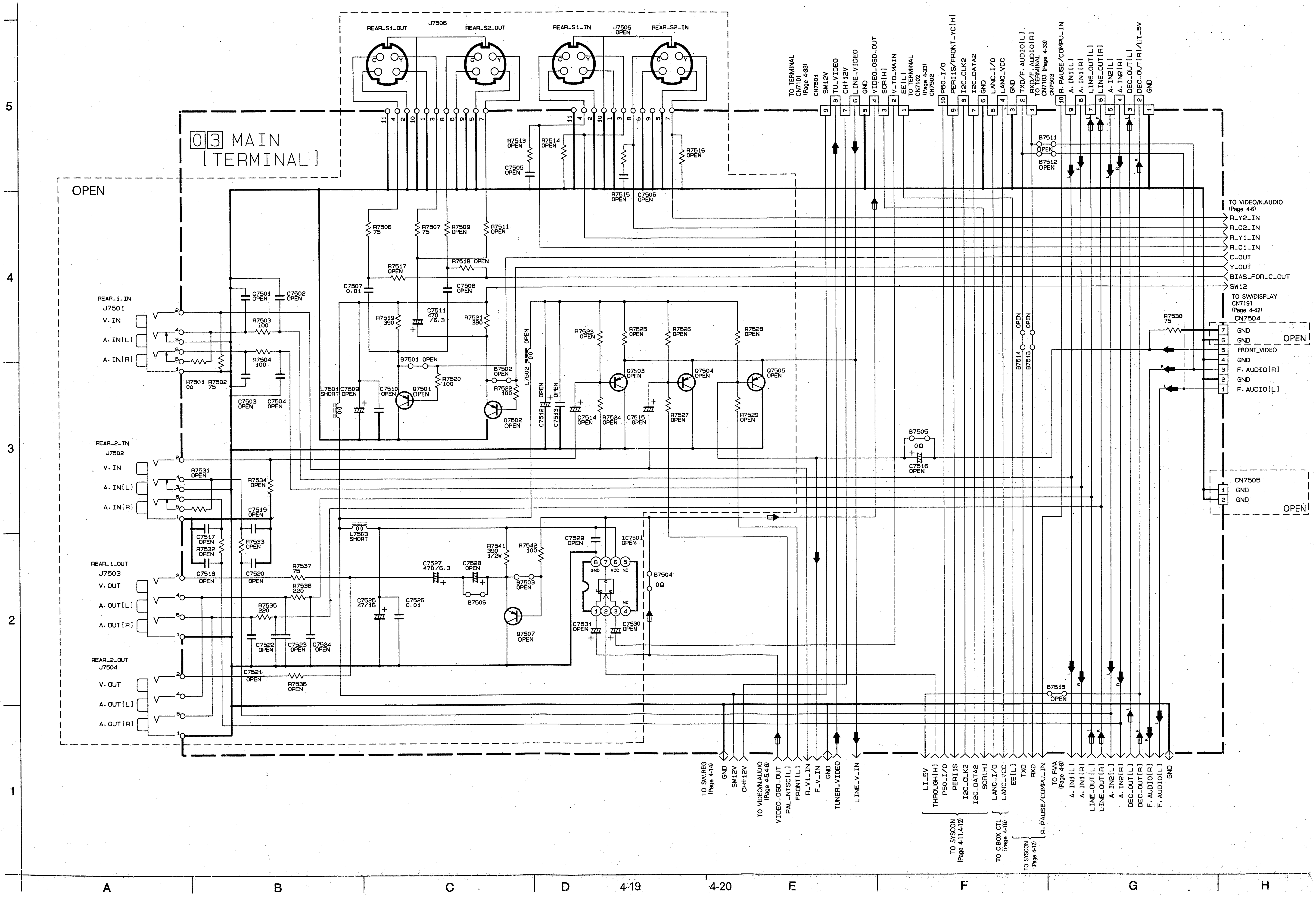

03 MAIN(TUNER)
TU6001
RF IN
RF OUT
PAL/MS
NTSC
ANT IN
ANT OUT
OPEN
TO SW.REG
(Page 4-14)
GND
RF5V
SW5V
SW12V
BT2
TO FMA
(Page 4-9)
DEMOD(L)
GND
DEMOD(R)
RF_AUDIO
TO DEMOD
CN6701
(Page 4-37)
CN6701
MICRO NAS
US
JPN
KOREA
PHILIPS
Q6551
IC6080
BA15218F
S6050
TO VIDEO/N.AUDIO
(Page 4-5, 4-6)
TU_VIDEO
VIDEO_OSD_OUT
GND
TU_AUDIO
TO SYSCON
(Page 4-12)
LOCK(L)
TU_CE
TU_DATA
TU_CLK
I2C_CLK2
I2C_DATA2
BS_ANT/AFC
TU_A_MUTE(H)
TU_V_MUTE(H)
BIL_SEL
LED/RF_AGC
JUST_CLK
SW_1
SW_2
1
2
3
4
5
A
B
C
D
4-15
4-16
E
F
G
H

4.8 C.BOX CTL SCHEMATIC DIAGRAM



03 MAIN [C.BOX_CTL]
TO SW.REG (Page 4-14)
SW12V
AL6V
AL17V
GND
TO VIDEO/N.AUDIO (Page 4-6)
TU_VIDEO
GR_VIDEO
BS_VIDEO
GND
TO VIDEO/N.AUDIO (Page 4-5)
EE[L]
GND
S-P[H]/V.STB[L]
FORCE[L]
PS_SECAM[H]
SW12V
B7201 OPEN
B7204 OPEN
B7206 OPEN
B7207 OPEN
B7208 OPEN
B7205 OPEN
B7203 OPEN
B7202 OPEN
J6101
DET_OUT[M-N]
DET_IN
DET_OUT[W]·P50_I/O
R6101 75
B7211 OPEN
B6104
B6108
B6107
B6105
B6106
J6102
AFC_IN
BIT_IN
BIT_OUT
R6102 75
B6109
OPEN
B6103 OPEN
B6102 OPEN
B6101 OPEN
CN6101
BS_VIDEO
GND
BIT_IN
GND
DET_IN
GND
BIT_OUT
PS_SECAM[H]/GND
RCE[L]/DET_OUT[W]
SW12V/GND
SW12V/AFC_IN
S-P[H]/GND
GND/DET_OUT[M-N]
GND
GND/BS_AUDIO[R]
EE[L]/GND
NC/BS_AUDIO[L]
OPEN
TO FMA (Page 4-9)
BS_AUDIO[L]
BS_AUDIO[R]
GND
CN1901
GR_VIDEO
GND
TU_VIDEO
GND
I2C_DATA2
I2C_CLK2
GR_ON[H]/CNR_CTL
SW12V
AL6V
OPEN
TO SYSCON (Page 4-12)
GR_ON[H]/CNR_CTL
I2C_CLK2
I2C_DATA2
BS_ANT/AFC
ANT_CTL[H]
BIT_IN[H]
P50_I/O
BS_PCTL[H]
JLIP[L]
RXD
TXD
AL5V
RMO
R.PAUSE/COMPU_IN
GND
JLIP_IN
JLIP_OUT
NC
CN6103
I2C_CLK2
I2C_DATA2
BS_ANT/AFC
ANT_CTL[H]
BIT_IN[H]
GND
SW12V
AL6V
AL17V
BS_PCTL[H]
OPEN
C6101 OPEN
IC3961 OPEN
B3961 OPEN
D3965 OPEN
R3954 OPEN
C3961 OPEN
D3961 OPEN
IC3962 OPEN
B3962 OPEN
R3961 OPEN
D3962 OPEN
D3964 OPEN
L7201 OPEN
Q7201 OPEN
D3963 OPEN
R7202 OPEN
C7202 OPEN
R7203 OPEN
R7204 OPEN
TO TERMINAL(MAIN) (Page 4-20)
LANC_VCC
LANC_I/O
R.PAUSE/COMPU/RAE
J3911
C3911 OPEN
95 LANC/C.BOX
J3952 LANC
J7201 C.BOX/DSS
R7211 100
CN7201
CN7202
91 JLIP
CN7502
CN3951
J3951 JLIP
B3951 OPEN
OPEN
A
B
C
D
E
F
G
H
1
2
3
4
5

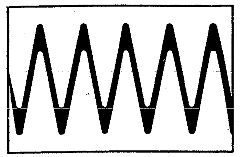
4.9 TERMINAL(MAIN) SCHEMATIC DIAGRAM


03 MAIN
[TERMINAL]
OPEN
J7506
REAR_S1_OUT
REAR_S2_OUT
REAR_S1_IN
J7505 OPEN
REAR_S2_IN
R7513 OPEN
R7514 OPEN
C7505 OPEN
R7515 OPEN
C7506 OPEN
R7516 OPEN
R7506 75
R7507 75
R7509 OPEN
R7511 OPEN
R7517 OPEN
R7518 OPEN
C7507 0.01
C7508 OPEN
C7511 470 /6.3
R7519 390
R7521 390
B7501 OPEN
R7520 100
B7502 OPEN
R7522 100
L7502 OPEN
Q7501 OPEN
Q7502 OPEN
L7501 SHORT
C7509 OPEN
C7510 OPEN
C7512 OPEN
C7513 OPEN
R7523 OPEN
R7525 OPEN
R7526 OPEN
R7528 OPEN
Q7503 OPEN
Q7504 OPEN
Q7505 OPEN
C7514 OPEN
R7524 OPEN
C7515 OPEN
R7527 OPEN
R7529 OPEN
REAR_1_IN
J7501
V. IN
A. IN[L]
A. IN[R]
C7501 OPEN
C7502 OPEN
R7503 100
R7504 100
R7501 0Ω
R7502 75
C7503 OPEN
C7504 OPEN
REAR_2_IN
J7502
V. IN
A. IN[L]
A. IN[R]
R7531 OPEN
R7534 OPEN
C7519 OPEN
C7517 OPEN
R7532 OPEN
R7533 OPEN
L7503 SHORT
REAR_1_OUT
J7503
V. OUT
A. OUT[L]
A. OUT[R]
C7518 OPEN
C7520 OPEN
R7537 75
R7538 220
R7535 220
C7522 OPEN
C7523 OPEN
C7524 OPEN
REAR_2_OUT
J7504
V. OUT
A. OUT[L]
A. OUT[R]
C7521 OPEN
R7536 OPEN
C7527 470/6.3
C7528 OPEN
B7506
R7541 390 1/2W
R7542 100
B7503 OPEN
C7525 47/16
C7526 0.01
Q7507 OPEN
C7529 OPEN
IC7501 OPEN
GND
VCC
NC
C7531 OPEN
C7530 OPEN
B7504 0Ω
B7505 0Ω
C7516 OPEN
B7511 OPEN
B7512 OPEN
B7514 OPEN
B7513 OPEN
B7515 OPEN
R7530 75
TO TERMINAL CN7101 (Page 4-33)
CN7501
SW12V
TU_VIDEO
CH+12V
LINE_VIDEO
GND
VIDEO_OSD_OUT
SCR[H]
V_TO_MAIN
EE[L]
TO TERMINAL CN7102 (Page 4-33)
CN7502
P50_I/O
PERI1S/FRONT_YC[H]
I2C_CLK2
I2C_DATA2
GND
LANC_I/O
LANC_VCC
GND
TXD/F. AUDIO[L]
RXD/F. AUDIO[R]
TO TERMINAL CN7103 (Page 4-33)
CN7503
R. PAUSE/COMPU_IN
A. IN1[L]
A. IN1[R]
LINE_OUT[L]
LINE_OUT[R]
A. IN2[L]
A. IN2[R]
DEC_OUT[L]
DEC_OUT[R]/LI_5V
GND
TO VIDEO/N.AUDIO (Page 4-6)
R_Y2_IN
R_C2_IN
R_Y1_IN
R_C1_IN
C_OUT
Y_OUT
BIAS_FOR_C_OUT
SW12
TO SW/DISPLAY CN7191 (Page 4-42)
CN7504
GND
GND
FRONT_VIDEO
GND
F. AUDIO[R]
GND
F. AUDIO[L]
OPEN
CN7505
GND
GND
OPEN
TO SW.REG (Page 4-14)
GND
SW12V
CH+12V
TO VIDEO/N.AUDIO (Page 4-5,4-6)
VIDEO_OSD_OUT
PAL_NTSC[L]
FRONT[L]
R_V1_IN
F_V_IN
GND
TUNER_VIDEO
LINE_V_IN
LI_5V
THROUGH[H]
P50_I/O
PERI1S
I2C_CLK2
I2C_DATA2
SCR[H]
LANC_I/O
LANC_VCC
EE[L]
TXD
RXD
R. PAUSE/COMPU_IN
TO FMA (Page 4-9)
A. IN1[L]
A. IN1[R]
LINE_OUT[L]
LINE_OUT[R]
A. IN2[L]
A. IN2[R]
DEC_OUT[L]
DEC_OUT[R]
F. AUDIO[R]
F. AUDIO[L]
GND
TO SYSCON (Page 4-11,4-12)
TO C.BOX CTL (Page 4-18)
TO SYSCON (Page 4-12)
A
B
C
D
E
F
G
H
1
2
3
4
5

WAVEFORMS

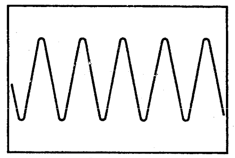
— VIDEO/N.AUDIO —

WF1 IC1-4



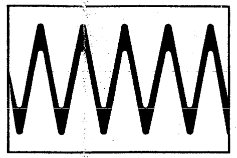
REC 0.8 Vp-p
20 mV/0.5 msec/DIV

WF2 IC1-9



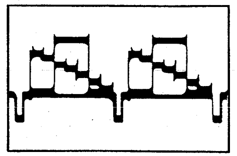
REC 0.1 Vp-p
2 mV/0.5 msec/DIV

WF3 IC1-11



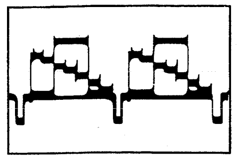
PB 0.48 Vp-p
10 mV/0.5 msec/DIV

WF4-1 IC1-19



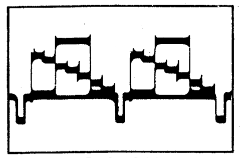
REC 0.51 Vp-p
20 mV/20 µsec/DIV

WF4-2 IC1-19



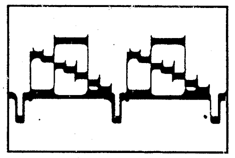
PB 0.55 Vp-p
20 mV/20 µsec/DIV

WF5-1 IC1-23



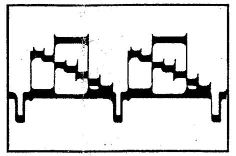
REC 0.48 Vp-p
20 mV/20 µsec/DIV

WF5-2 IC1-23



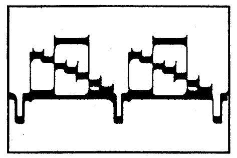
PB 0.52 Vp-p
20 mV/20 µsec/DIV

WF6-1 IC1-42



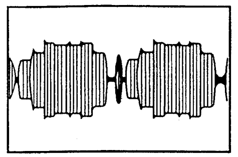
REC 0.4 Vp-p
10 mV/20 µsec/DIV

WF6-2 IC1-42



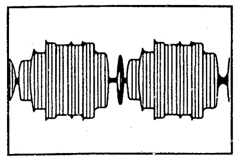
PB 0.43 Vp-p
10 mV/20 µsec/DIV

WF7-1 IC1-46



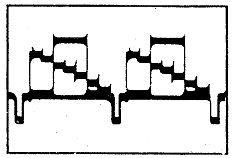
REC 0.24 Vp-p
10 mV/20 µsec/DIV

WF7-2 IC1-46



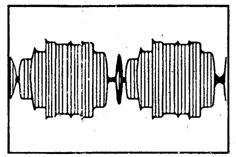
PB 0.3 Vp-p
10 mV/20 µsec/DIV

WF8 IC1-52



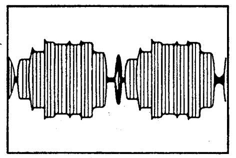
PB 2.2 Vp-p
50 mVV/20 µsec/DIV

WF9 IC1-55



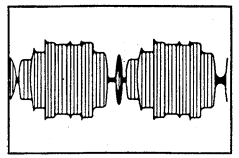
PB 0.6 Vp-p
20 mV/20 µsec/DIV

WF10-1 IC1-58



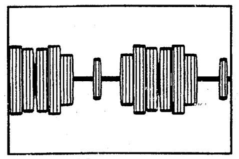
REC 0.4 Vp-p
10 mV/20 µsec/DIV

WF10-2 IC1-58



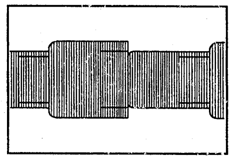
PB 0.48 Vp-p
10 mV/20 µsec/DIV

WF11-1 IC1-78



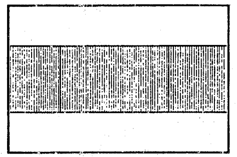
REC 0.62 Vp-p
20 mV/20 µsec/DIV

WF11-2 IC1-78



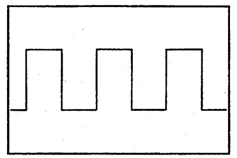
PB 0.22 Vp-p
10 mV/5 msec/DIV

WF12 IC1-87



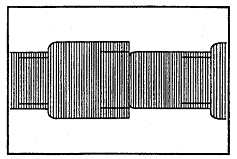
REC 1.6 Vp-p
50 mV/1 msec/DIV

WF13 TP111 D.FF



REC/PB 5.2 Vp-p
0.2 V/10 msec/DIV

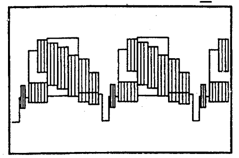
WF14 TP106 V.PB FM



PB 0.32 Vp-p
10 mV/5 msec/DIV

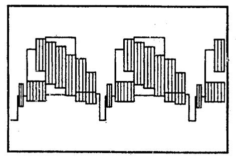
— ON SCREEN —

WF1 IC201-21 CV_IN



REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

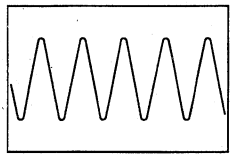
WF2 IC201-19 CVOUT



REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

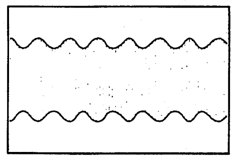
— FMA —

WF1 IC2201-9



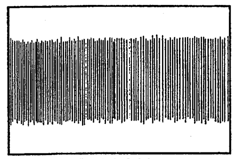
REC 0.11 Vp-p
2 mV/0.5 msec/DIV

WF2 IC2201-21



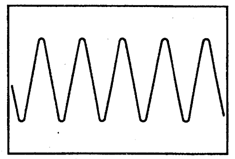
REC 0.48 Vp-p
10 mV/1 msec/DIV

WF3 IC2201-30



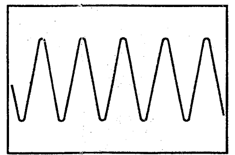
PB 0.56 Vp-p
20 mV/5 msec/DIV

WF4 IC2201-53



REC/PB 1.2 Vp-p
20 mV/0.5 msec/DIV

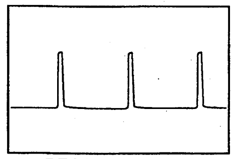
WF5 IC2201-61



REC 0.12 Vp-p
2 mV/0.5 msec/DIV

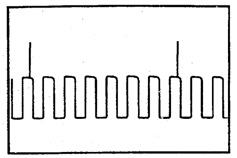
— SYSCON —

WF1 CN3001-4 D.PG



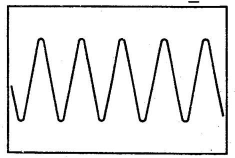
REC/PB 4.8 Vp-p
0.2 V/10 msec/DIV

WF2 CN3001-5 D.FG



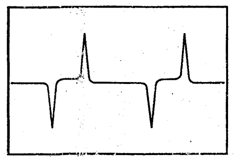
REC/PB 4.5 Vp-p
0.1 V/5 msec/DIV

WF3 CN3003-2 CAP_FG



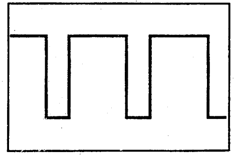
REC/PB 2.2 Vp-p
50 mV/0.5 msec/DIV

WF4 TP4001 CTL P



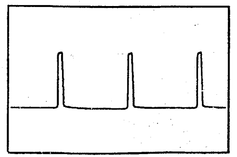
PB 2.5 Vp-p
50 mV/10 msec/DIV

WF5 IC3001-1 CTL(+)



REC 4.0 Vp-p
0.1 V/10 msec/DIV

WF6 IC3001-98 C.SYNC



REC/PB 4.1 Vp-p
0.1 V/20 µsec/DIV

COMPONENT PARTS LOCATION GUIDE <MAIN>

REF.NO.	LOCATION		
CAPACITOR			
C1	A	D	11L
C3	B	C	13L
C5	B	C	14L
C6	B	C	14K
C7	A	D	13L
C9	B	C	14L
C11	B	C	14L
C12	B	C	13K
C13	A	D	13K
C14	B	C	13K
C15	B	C	13K
C16	B	C	14K
C17	B	C	17G
C18	B	C	17G
C19	B	C	16H
C20	A	D	14J
C21	B	C	14J
C22	B	C	15J
C23	B	C	13J
C24	B	C	14J
C25	B	C	14J
C26	B	C	14J
C27	B	C	15J
C29	A	D	14I
C30	A	D	13I
C31	B	C	13I
C32	B	C	12H
C34	A	D	12I
C36	B	C	13J
C37	A	D	13I
C38	B	C	11H
C39	B	C	12G
C40	B	C	12H
C41	B	C	12I
C42	B	C	10H
C43	B	C	11H
C44	B	C	10H
C45	B	C	10H
C46	B	C	10H
C47	B	C	11J
C48	A	D	11I
C49	B	C	9H
C50	B	C	9H
C51	B	C	10M
C52	B	C	10N
C53	B	C	11N
C54	A	D	11J
C55	A	D	10J
C56	A	D	10K
C57	B	C	10K
C58	B	C	10J
C59	B	C	10J
C60	B	C	9K
C61	B	C	8J
C62	B	C	9K
C63	B	C	10K
C64	A	D	8K
C65	B	C	10K
C73	B	C	12H
C74	B	C	12G
C76	B	C	17G
C77	B	C	17G
C78	B	C	18G
C79	B	C	17G
C80	B	C	16G
C81	B	C	13K
C82	B	C	13L
C83	B	C	13L
C84	B	C	13L
C85	B	C	16G
C86	A	D	17H
C87	B	C	16G
C88	B	C	15G
C89	B	C	16G
C90	B	C	16G
C91	B	C	10I
C92	B	C	9K
C95	B	C	14K
C98	B	C	9K
C99	B	C	9J
C101	B	C	9K
C102	B	C	19I
C104	B	C	11I
C105	B	C	12N
C107	B	C	13I
C115	B	C	12H
C120	B	C	17H
C129	B	C	16J
C130	B	C	16I
C131	B	C	15J
C134	B	C	11J
C136	B	C	13K
C141	B	C	12I
C145	B	C	10G
C146	B	C	15G
C147	B	C	15H
C148	B	C	15H
C150	A	D	18G
C153	B	C	13G
C154	B	C	9J
C158	B	C	14J
C164	B	C	14K
C165	B	C	14K
C168	B	C	11L
C169	B	C	9H
C171	B	C	11H
C175	B	C	9J
C176	B	C	18H
C177	B	C	13N
C178	B	C	11H
C181	B	C	12H
C182	B	C	9I
C183	B	C	9I
C191	B	C	15G
C193	B	C	9J
C201	A	D	7N
C202	B	C	8M
C203	B	C	8L
C204	B	C	8L
C205	B	C	8L
C206	B	C	7M
C207	B	C	7M
C208	B	C	6L
C209	B	C	7M
C210	B	C	6M
C211	B	C	6M
C212	B	C	6L
C213	A	D	6L
C214	B	C	6M
C215	B	C	6M
C216	A	D	6M
C217	B	C	7N
C218	B	C	7N
C219	B	C	7N
C220	B	C	7M
C222	B	C	8M
C223	B	C	6N
C224	B	C	6N
C401	B	C	18I
C402	B	C	18I
C403	B	C	17I
C404	B	C	17I
C405	B	C	17I
C406	B	C	17I
C407	B	C	16J
C408	B	C	16J
C409	B	C	16J
C2001	B	C	14M
C2002	A	D	14L
C2003	B	C	12L
C2004	A	D	12L
C2005	B	C	11L
C2006	B	C	12L
C2007	A	D	12L
C2008	B	C	11L
C2009	A	D	11L
C2010	A	D	15M
C2011	B	C	12M
C2013	B	C	13M
C2015	A	D	15M
C2016	A	D	15N
C2017	B	C	11L
C2051	B	C	7I
C2052	A	D	7I
C2053	B	C	6J
C2054	B	C	6J
C2055	A	D	6J
C2061	A	D	20G
C2062	B	C	20F
C2063	B	C	20F
C2064	A	D	20F
C2101	A	D	18N
C2102	A	D	13L
C2151	B	C	17J
C2152	B	C	18J
C2201	A	D	17M
C2202	A	D	17N
C2203	A	D	17N
C2204	A	D	17N
C2205	A	D	16M
C2206	A	D	16M
C2207	A	D	16N
C2208	A	D	16L
C2209	A	D	16L
C2210	A	D	17J
C2211	A	D	18K
C2212	A	D	18J
C2213	A	D	18K
C2214	B	C	18L
C2215	A	D	18L
C2216	A	D	18L
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C2222	A	D	18N
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C2225	A	D	18N
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C2227	A	D	18N
C2228	A	D	19M
C2229	A	D	19M
C2230	B	C	16M
C2231	B	C	16L
C2232	A	D	17K
C2233	B	C	17K
C2234	B	C	17K
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C2254	B	C	16K
C2255	B	C	16K
C2256	B	C	19L
C2257	A	D	16K
C2258	B	C	16K
C2259	B	C	16K
C2260	B	C	17J
C2261	B	C	16K
C2262	B	C	15K
C2263	B	C	16K
C2501	A	D	20B
C2502	B	C	21C
C2503	A	D	20C
C2504	B	C	20C
C2505	A	D	20B
C2506	B	C	19D
C2507	B	C	20D
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C2515	B	C	20D
C2517	B	C	21C
C2518	B	C	18B
C2519	B	C	18C
C2520	B	C	20B
C2521	A	D	20B
C3001	B	C	8J
C3002	B	C	8H
C3003	A	D	7H
C3004	B	C	7H
C3007	B	C	5E
C3008	B	C	21E
C3010	A	D	1B
C3011	A	D	1B
C3012	A	D	4B
C3013	B	C	5B
C3014	B	C	9E
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C3040	B	C	8C
C3041	B	C	11C
C3042	A	D	4A
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C3053	A	D	6B
C3054	B	C	12C
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C3302	B	C	15C
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C3503	B	C	14F
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C3505	B	C	14F
C3911	B	C	17P
C3961	B	C	16A
C4001	B	C	9E
C4002	B	C	10E
C4003	B	C	9F
C4004	B	C	10F
C4005	B	C	9F
C4006	B	C	9F
C4007	B	C	10F
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C4009	B	C	9E
C4010	B	C	7E
C4011	B	C	11F
C4012	B	C	11G
C4013	B	C	11F
C4014	B	C	11F
C4015	B	C	10F
C5001	A	D	2O
C5002	A	D	3N
C5003	A	D	4P
C5004	A	D	1M
C5005	A	D	1L
C5006	A	D	3M
C5101	A	D	3K
C5102	A	D	3J
C5103	B	C	2K
C5104	A	D	3L
C5105	A	D	1K
C5106	A	D	4L
C5107	A	D	2K
C5108	A	D	3N
C5109	A	D	2N
C5110	A	D	2K
C5201	A	D	1F
C5202	A	D	2G
C5203	A	D	1G
C5204	A	D	4H
C5205	A	D	1F
C5206	A	D	3G
C5207	A	D	3F
C5208	A	D	1E
C5209	A	D	6P
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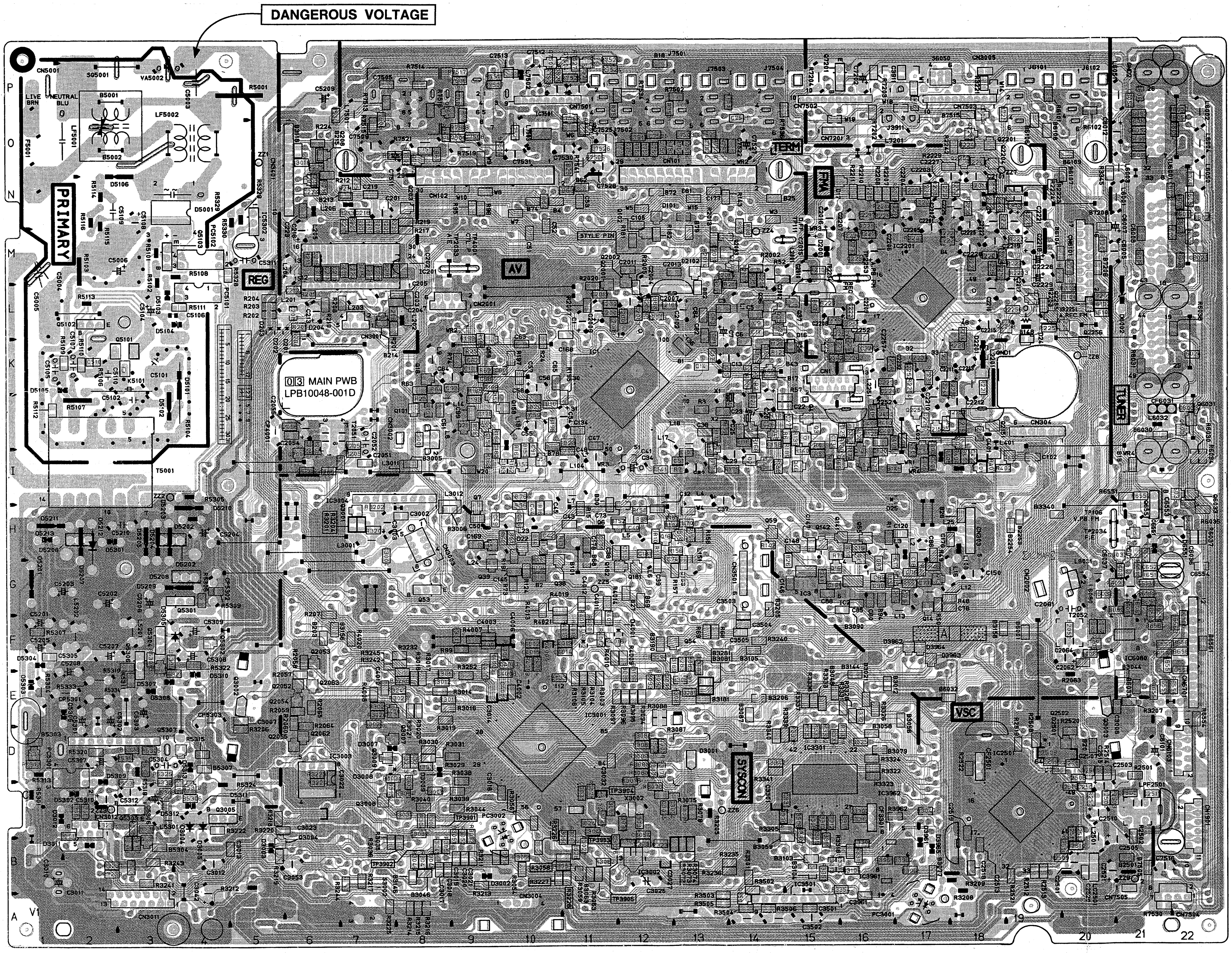
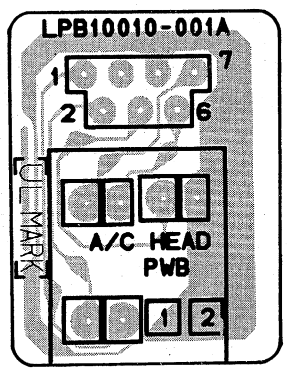
C5303	A	D	3E
C5304	A	D	4D
C5305	B	C	1F
C5306	A	D	3C
C5307	A	D	2D
C5308	A	D	4F
C5309	A	D	4F
C5310	A	D	2C
C5311	A	D	5M
C5312	A	D	3C
C6005	A	D	20M
C6006	B	C	21M
C6007	A	D	21M
C6008	B	C	21M
C6012	A	D	21O
C6013	B	C	21O
C6014	B	C	21P
C6016	B	C	21O
C6020	B	C	22M
C6021	B	C	22M
C6022	B	C	21N
C6023	B	C	22M
C6024	B	C	22K
C6032	B	C	21G
C6033	B	C	22J
C6036	B	C	22H
C6037	A	D	21G
C6052	B	C	21O
C6053	B	C	21P
C6054	B	C	21P
C6055	B	C	21O
C6080	B	C	21G
C6101	A	D	21D
C6519	B	C	21G
C6520	B	C	21G
C6551	A	D	21H
C6552	B	C	21H
C6553	A	D	22H
C6554	B	C	22G
C7202	A	D	16P
C7501	B	C	12O
C7502	B	C	12O
C7503	B	C	13O
C7504	B	C	13O
C7505	B	C	7P
C7506	B	C	7O
C7507	B	C	9P
C7508	B	C	9O
C7509	A	D	7O
C7510	B	C	8O
C7511	A	D	8O
C7512	A	D	10P
C7513	B	C	10P
C7514	A	D	11P
C7515	A	D	11P
C7516	A	D	21B
C7517	B	C	12O
C7518	B	C	12O
C7519	B	C	12O
C7520	B	C	12O
C7521	B	C	14O
C7522	B	C	14O
C7523	B	C	13O
C7524	B	C	13O
C7525	A	D	11O
C7526	B	C	11O
C7527	A	D	14O
C7528	A	D	11O
C7529	B	C	10O
C7530	A	D	11O
C7531	A	D	10O
CONNECTOR			
CN1	A	D	15K
CN101	A	D	14O
CN102	A	D	10O
CN303	A	D	18H
CN304	A	D	20J
CN1901	A	D	22C
CN2001	A	D	9L
CN2002	A	D	20G
CN3001	A	D	7L
CN3002	A	D	8J
CN3003	A	D	8H
CN3004	A	D	10A
CN3005	A	D	18P
CN3011	A	D	3A
CN3012	A	D	2C
CN3401	A	D	6O
CN3501	A	D	14H
CN5001	A	D	1P
CN6101	A	D	20L
CN6103	A	D	22D
CN6701	A	D	22E
CN7201	A	D	15O
CN7501	A	D	11P
CN7502	A	D	16P
CN7503	A	D	18P
CN7504	A	D	22A
CN7505	A	D	21B
DIODE			
D16	B	C	15K
D17	B	C	16N
D22	B	C	10H
D24	B	C	19K
D25	B	C	16I
D101	B	C	12N
D201	B	C	6L
D202	B	C	5L
D203	B	C	5L
D204	B	C	6L
D2001	A	D	15M
D2201	A	D	18K
D2501	B	C	19D
D3001	A	D	13D
D3002	A	D	9B
D3003	A	D	5B
D3004	A	D	4C
D3005	A	D	4C
D3006	B	C	18P
D3007	A	D	8D
D3008	B	C	7D
D3009	A	D	8D
D3011	A	D	2B
D3012	A	D	1C
D3961	A	D	17C
D3962	B	C	17F
D3963	B	C	17F
D3964	B	C	17F
D3965	A	D	17B
D4001	B	C	12F
D4002	B	C	11F
D5001	B	C	3N
D5101	A	D	4J
D5102	A	D	3K
D5103	A	D	3L
D5104	A	D	3L
D5105	A	D	2K
D5106	A	D	3N
D5201	A	D	1G
D5202	A	D	4H
D5203	A	D	3H
D5204	A	D	3H
D5205	A	D	3H
D5206	A	D	2H
D5207	A	D	2H
D5208	A	D	4G
D5209	A	D	4G
D5210	A	D	3H
D5211	A	D	1H
D5212	A	D	2H
D5213	A	D	1H
D5301	A	D	2H
D5302	A	D	2C
D5303	A	D	1E
D5304	A	D	1F
D5305	A	D	4F
D5306	A	D	2E
D5307	A	D	3E
D5308	A	D	3E
D5309	A	D	2D
D5310	A	D	4E
D5311	A	D	4C
D5312	B	C	3C
D5313	A	D	4D
D6002	A	D	21M
D6551	A	D	21G
IC			
IC1	B	C	12K
IC2	B	C	16G
IC3	B	C	15G
IC201	A	D	8L
IC2201	B	C	17L
IC2501	B	C	19C
IC3001	B	C	10D
IC3002	B	C	12B
IC3003	A	D	6C
IC3004	A	D	8I
IC3301	B	C	15D
IC3501	A	D	15A
IC3961	B	C	16B
IC3962	B	C	16B
IC5301	A	D	2D
IC5302	A	D	5N
IC6080	B	C	21F
IC7501	B	C	10O
JACK			
J3911	A	D	17P
J6101	A	D	19P
J6102	A	D	20P
J7501	A	D	12P
J7502	A	D	11P
J7503	A	D	13P
J7504	A	D	14P
J7505	A	D	8P
J7506	A	D	9P
COIL			
L1	A	D	14L
L2	A	D	17G
L3	A	D	16H
L4	A	D	13I
L5	A	D	12H
L6	A	D	12G
L7	A	D	11I
L8	A	D	9J
L9	A	D	8K
L12	A	D	17G
L13	A	D	17G
L14	A	D	9J
L16	A	D	18G
L17	A	D	13J
L18	A	D	13J
L23	A	D	10H
L24	A	D	9H
L25	A	D	18H
L104	A	D	11I
L108	A	D	18G
L151	A	D	13G
L181	A	D	10I
L201	A	D	6L
L202	A	D	8L
L203	A	D	7L
L204	A	D	6M
L205	A	D	6N
L206	A	D	7N
L401	A	D	18I
L402	A	D	17I
L2001	A	D	15L
L2201	A	D	18K
L2251	A	D	16K
L2252	A	D	17J
L2501	A	D	20C
L3001	A	D	7H
L3011	B	C	8I
L3012	B	C	8H
L3501	A	D	14A
L5201	A	D	3F
L5202	A	D	2F
L5301	A	D	4C
L6001	A	D	21N
L6002	A	D	22P
L6003	A	D	21O
L6004	A	D	22O
L6031	A	D	20G
L6032	A	D	21J
L6050	A	D	22O
L6051	A	D	21P
L6080	A	D	20G
L7201	A	D	16O
L7501	A	D	7P
L7502	A	D	10P
L7503	A	D	10O
TRANSISTOR			
Q1	B	C	15J
Q2	B	C	14I
Q3	B	C	15J
Q4	B	C	15J
Q6	B	C	12H
Q7	B	C	9H
Q13	B	C	17G
Q14	B	C	17G
Q15	B	C	17G
Q16	B	C	15G
Q17	B	C	16G
Q18	B	C	8K
Q21	B	C	9J
Q34	B	C	14L
Q35	B	C	14L
Q36	B	C	14L
Q37	B	C	15L
Q38	B	C	10G
Q39	B	C	9G
Q45	B	C	14J
Q46	B	C	15I
Q47	B	C	14J
Q48	B	C	14I
Q49	B	C	13I
Q52	B	C	9H
Q53	A	D	8G
Q54	B	C	13F
Q55	B	C	16H
Q56	B	C	10I
Q57	B	C	9J
Q58	B	C	9K
Q59	B	C	14H
Q101	B	C	8J
Q102	B	C	12M
Q103	B	C	16I
Q104	B	C	16I
Q141	B	C	16H
Q142	B	C	15H
Q152	B	C	14K
Q153	B	C	12H
Q154	B	C	13H
Q157	B	C	10I
Q158	B	C	9J
Q159	B	C	9J
Q160	B	C	16I
Q161	B	C	12H
Q181	B	C	12G
Q182	B	C	12G
Q203	B	C	8N
Q204	B	C	7L
Q207	B	C	6N
Q208	B	C	6O
Q211	B	C	7N
Q401	B	C	18I
Q402	B	C	19I
Q403	B	C	18J
Q404	B	C	17I
Q405	B	C	16J
Q2001	B	C	11L
Q2002	B	C	12M
Q2003	B	C	14M
Q2051	B	C	6I
Q2052	B	C	6E
Q2053	B	C	6F
Q2054	B	C	6E
Q2055	B	C	6D
Q2061	B	C	20F
Q2062	B	C	6D
Q2063	B	C	6E
Q2102	B	C	13M
Q2103	B	C	14M
Q2151	B	C	18J
Q2152	B	C	17J
Q2201	B	C	18O
Q2202	B	C	18O
Q2203	B	C	18O
Q2204	B	C	18O
Q2251	B	C	15K
Q2252	B	C	16L
Q2253	B	C	17J
Q2254	B	C	19L
Q2255	B	C	19L
Q2256	B	C	20K
Q2257	B	C	20L
Q2258	B	C	19L
Q2501	B	C	20D
Q2502	B	C	20D
Q3001	B	C	7H
Q3002	A	D	5E
Q3003	A	D	20E
Q3004	B	C	5B
Q3005	A	D	5C
Q3007	B	C	7D
Q3008	B	C	7C
Q3009	B	C	7D
Q3501	B	C	14A
Q4001	B	C	7E
Q5101	A	D	2K
Q5102	A	D	2L
Q5103	A	D	3M
Q5301	A	D	3G
Q5302	B	C	4F
Q5303	A	D	3C
Q5304	A	D	3F
Q5305	B	C	3F
Q5306	A	D	3F
Q5307	B	C	4D
Q5308	B	C	3C
Q5310	B	C	4C
Q5311	B	C	3B
Q5312	B	C	1D
Q6030	B	C	22J
Q6031	B	C	22J
Q6032	B	C	21G
Q6033	B	C	22I
Q6035	B	C	22I
Q6501	B	C	21H
Q6502	B	C	21H
Q6551	A	D	21H
Q7201	A	D	16P
Q7501	B	C	8P
Q7502	B	C	8O
Q7503	B	C	11P
Q7504	B	C	11P
Q7505	B	C	10P
Q7507	B	C	11O
RESISTOR			
R1	B	C	16H
R2	B	C	14K
R3	B	C	13J
R4	B	C	15J
R5	B	C	15I
R6	B	C	15J
R7	B	C	13I
R10	B	C	12H
R11	B	C	12H
R13	B	C	10H
R15	B	C	11H
R16	B	C	10H
R20	B	C	10J
R23	B	C	8J
R24	B	C	10K
R25	B	C	9K
R46	B	C	17G
R47	B	C	17G
R48	B	C	18G
R49	B	C	17H
R50	B	C	17G
R52	B	C	14M
R54	B	C	17G
R55	B	C	17G
R56	B	C	10H
R57	B	C	15J
R59	B	C	12H
R60	B	C	9H
R61	B	C	10H
R62	B	C	9K
R63	B	C	8K
R64	B	C	8K
R68	B	C	13F
R69	B	C	13F
R71	B	C	15H
R73	B	C	10G
R74	B	C	9K
R75	B	C	9J
R76	B	C	10I
R94	B	C	16G
R95	B	C	9N
R96	B	C	9N
R97	B	C	14N
R98	B	C	14M
R99	B	C	9F
R101	B	C	8J
R112	B	C	14K
R116	B	C	14J
R120	B	C	14K
R121	B	C	14K
R123	B	C	10H
R124	B	C	10G
R126	B	C	16J
R127	B	C	16I
R128	B	C	16J
R129	B	C	16J
R130	B	C	16J
R137	B	C	14J
R139	B	C	15J
R140	B	C	15I
R141	B	C	15G
R142	B	C	14H
R143	B	C	13N
R150	B	C	12H
R151	B	C	15I
R156	B	C	13H
R157	B	C	13G
R158	B	C	13H
R159	B	C	13H
R161	B	C	10I
R162	B	C	10I
R163	B	C	9I
R164	B	C	9J
R165	B	C	9K
R166	B	C	9K
R168	B	C	14J
R169	B	C	14I
R170	B	C	13J
R171	B	C	13I
R172	B	C	16I
R178	B	C	13J
R179	B	C	14I
R181	B	C	12M
R182	B	C	12M
R189	B	C	15I
R190	B	C	10G
R191	B	C	10H
R194	B	C	10G
R195	B	C	11J
R196	B	C	10J
R197	B	C	10K
R198	B	C	9K
R199	B	C	9L
R201	B	C	7L
R202	B	C	5L
R203	B	C	5L
R204	B	C	5L
R205	B	C	6L
R206	B	C	7L
R207	B	C	6G
R208	B	C	7L
R209	B	C	6L
R210	B	C	6L
R211	B	C	6M
R212	B	C	6N
R213	B	C	7N
R215	B	C	7M
R216	B	C	7M
R217	B	C	8M
R218	B	C	6N
R219	B	C	8N
R220	B	C	7N
R223	B	C	7N
R224	B	C	6O
R225	B	C	6O
R235	B	C	7N
R401	B	C	18I
R402	B	C	18I
R403	B	C	18I
R404	B	C	18I
R405	B	C	17I
R408	B	C	17J
R409	B	C	17J
R410	B	C	16J
R2001	B	C	14M
R2002	B	C	14M
R2003	B	C	12L
R2004	B	C	12L
R2005	B	C	12L
R2006	B	C	11L
R2007	B	C	11L
R2009	B	C	13M
R2010	B	C	13M
R2013	B	C	13M
R2014	B	C	13M
R2018	B	C	13L
R2019	B	C	13M
R2020	B	C	11L
R2051	B	C	7I
R2052	B	C	7I
R2053	B	C	7J
R2054	B	C	6J
R2055	B	C	6I
R2056	B	C	6J
R2057	B	C	6E
R2058	B	C	6F
R2059	B	C	6E
R2060	B	C	6E
R2061	B	C	20F
R2062	B	C	20F
R2063	A	D	20E
R2064	B	C	6E
R2065	B	C	6E
R2105	B	C	12L
R2106	B	C	14L
R2107	B	C	14M
R2108	B	C	15M
R2151	B	C	18J
R2152	B	C	18J
R2201	B	C	17N
R2202	B	C	17N
R2203	B	C	17M
R2204	B	C	17N
R2205	B	C	17N
R2206	B	C	17N
R2207	B	C	16N
R2208	B	C	16N
R2209	B	C	16N
R2210	B	C	16N
R2211	B	C	16N
R2212	B	C	17N
R2213	B	C	16N
R2214	B	C	16N
R2215	B	C	16M
R2216	B	C	16N
R2217	B	C	16N
R2218	B	C	18K
R2219	B	C	19N
R2220	B	C	18M
R2221	B	C	18N
R2222	B	C	19M
R2223	B	C	19N
R2224	B	C	19N
R2225	B	C	18N
R2226	B	C	18N
R2227	B	C	17M
R2228	B	C	18N
R2229	B	C	18O
R2230	B	C	18N
R2231	B	C	17N
R2232	B	C	19M
R2233	B	C	19M
R2234	B	C	18M
R2235	B	C	18M
R2236	B	C	16M
R2237	B	C	16M
R2238	B	C	17K
R2239	B	C	18K
R2240	B	C	17K
R2241	B	C	18O
R2242	B	C	18O
R2243	B	C	18O
R2244	B	C	18K
R2251	B	C	18K
R2252	B	C	17K
R2253	B	C	19L
R2254	B	C	17K
R2255	B	C	19L
R2501	B	C	21D
R2502	B	C	21B
R2503	B	C	20C
R2504	B	C	20C
R2505	B	C	20C
R2506	B	C	20C
R2507	B	C	20D
R2508	B	C	19D
R2509	B	C	19B
R2510	B	C	20B
R2511	B	C	20B
R2512	B	C	19B
R2513	B	C	19B
R2514	B	C	20D
R2515	B	C	20C
R2519	B	C	19D
R2520	B	C	20D
R2521	B	C	19B
R2522	B	C	18D
R3011	B	C	9F
R3012	B	C	8E
R3013	B	C	8E
R3014	B	C	8E
R3015	B	C	8E
R3016	B	C	8E
R3017	B	C	8E
R3018	B	C	8E
R3019	B	C	8E
R3020	B	C	8E
R3021	B	C	8E
R3022	B	C	8E
R3025	B	C	7E
R3026	B	C	7E
R3027	B	C	7E
R3029	B	C	9D
R3030	B	C	8D
R3031	B	C	8D
R3033	B	C	8C
R3034	B	C	8C
R3035	B	C	7B
R3036	B	C	8B
R3037	B	C	8C
R3038	B	C	9D
R3039	B	C	9C
R3040	B	C	8C
R3041	B	C	8C
R3042	B	C	8C
R3044	B	C	9C
R3046	B	C	8B
R3047	B	C	8B
R3048	B	C	8B
R3049	B	C	8B
R3050	B	C	8B
R3051	B	C	9C
R3052	B	C	9C
R3053	B	C	9C
R3054	B	C	10B
R3055	B	C	10B
R3056	B	C	10C
R3057	B	C	11B
R3058	B	C	11B
R3059	B	C	11B
R3060	B	C	11B
R3061	B	C	11B
R3062	B	C	11B
R3063	B	C	11B
R3066	B	C	12B
R3069	B	C	11C
R3071	B	C	11C
R3072	B	C	13B
R3073	B	C	13B
R3074	B	C	13B
R3075	B	C	12C
R3076	B	C	12C
R3077	B	C	13C
R3078	B	C	12C
R3079	B	C	13C
R3080	B	C	12D
R3081	B	C	12D
R3083	B	C	12D
R3085	B	C	12D
R3086	B	C	12D
R3087	B	C	12E
R3088	B	C	12E
R3089	B	C	13E
R3090	B	C	12F
R3091	B	C	12E
R3092	B	C	12E
R3093	B	C	12E
R3094	B	C	12E
R3095	B	C	12E
R3096	B	C	12E
R3097	B	C	11E
R3103	B	C	11E
R3104	B	C	11E
R3105	B	C	11E
R3106	B	C	11E
R3201	B	C	7H
R3202	B	C	7H
R3203	B	C	7H
R3204	B	C	7H
R3205	A	D	13C
R3206	B	C	5D
R3207	B	C	21E
R3208	A	D	18A
R3209	A	D	18B
R3210	B	C	9B
R3211	B	C	9B
R3212	A	D	5B
R3213	B	C	9B
R3214	B	C	8A
R3215	B	C	8A
R3216	B	C	8A
R3217	B	C	7B
R3218	B	C	5C
R3219	B	C	5B
R3220	B	C	5C
R3221	B	C	18P
R3222	B	C	4C
R3223	B	C	6D
R3224	B	C	6C
R3225	B	C	7A
R3226	B	C	10B
R3227	B	C	10B
R3228	B	C	11B
R3229	B	C	11C
R3230	B	C	12B
R3231	B	C	12B
R3232	B	C	8F
R3233	B	C	8D
R3234	B	C	8D
R3235	B	C	14B
R3236	B	C	14B
R3237	B	C	2B
R3238	B	C	2C
R3239	B	C	2B
R3240	B	C	14F
R3241	B	C	3B
R3242	B	C	8E
R3243	B	C	3B
R3244	B	C	7B
R3245	B	C	8F
R3246	B	C	8E
R3247	B	C	8E
R3251	B	C	3B
R3252	B	C	9E
R3304	B	C	14C
R3305	B	C	15C
R3306	B	C	15C
R3307	B	C	15B
R3308	B	C	15C
R3309	B	C	15B
R3310	B	C	15C
R3311	B	C	15B
R3312	B	C	15C
R3313	B	C	15B
R3314	B	C	16B
R3316	B	C	16B
R3317	B	C	16C
R3318	B	C	16B
R3319	B	C	16C
R3322	B	C	16D
R3323	B	C	16D
R3324	B	C	16D
R3325	B	C	16D
R3326	B	C	16E
R3327	B	C	16E
R3328	B	C	16E
R3329	B	C	16D
R3330	B	C	15D
R3331	B	C	16E
R3332	B	C	15D
R3333	B	C	15E
R3334	B	C	15D
R3335	B	C	15D
R3336	B	C	15E
R3337	B	C	15E
R3338	B	C	15D
R3339	B	C	15D
R3340	B	C	14D
R3341	B	C	14D
R3342	B	C	14D
R3345	B	C	20N
R3346	B	C	22N
R3353	B	C	15B
R3354	B	C	16B
R3501	B	C	14B
R3502	B	C	14B
R3503	B	C	13A
R3504	B	C	14A
R3505	B	C	13A
R3506	B	C	14A
R3961	B	C	16B
R3962	B	C	17C
R4001	B	C	11F
R4002	B	C	10F
R4003	B	C	10F
R4004	B	C	10F
R4005	B	C	9F
R4006	B	C	9F
R4007	B	C	9F
R4008	B	C	7E
R4009	B	C	12F
R4010	B	C	11F
R4011	B	C	11F
R4012	B	C	11F
R4013	B	C	10G
R4014	B	C	11G
R4015	B	C	11F
R4016	B	C	11F
R4017	B	C	11F
R4018	B	C	11F
R4019	B	C	10G
R4020	B	C	7F
R4021	B	C	10F
R5001	A	D	5P
R5101	A	D	3M
R5102	A	D	3L
R5103	A	D	2M
R5104	A	D	4J
R5105	A	D	3K
R5106	A	D	2K
R5107	A	D	2J
R5108	A	D	4M
R5109	B	C	2K
R5110	B	C	2K
R5111	B	C	4L
R5112	B	C	1J
R5113	A	D	2L
R5114	A	D	2N
R5115	A	D	2M
R5116	A	D	2M
R5301	A	D	1C
R5302	B	C	3C
R5303	B	C	3C
R5304	A	D	1E
R5305	A	D	4I
R5306	B	C	3D
R5307	B	C	1F
R5308	B	C	4G
R5309	B	C	4G
R5310	B	C	3F
R5311	B	C	3E
R5312	B	C	1D
R5313	A	D	1D
R5314	B	C	3D
R5315	B	C	4D
R5316	B	C	4C
R5317	B	C	3B
R5318	B	C	3B
R5319	A	D	3D
R5320	B	C	2D
R5321	B	C	4E
R5322	B	C	4F
R5323	A	D	4H
R5324	A	D	5C
R5325	B	C	3D
R5326	B	C	3D
R5327	B	C	3D
R5328	B	C	5M
R5329	A	D	5N
R5330	A	D	5M
R5331	B	C	3C
R5332	B	C	3C
R5333	A	D	2E
R5334	A	D	2E
R6020	B	C	22N
R6021	B	C	22M
R6022	B	C	22N
R6023	B	C	22M
R6025	B	C	22N
R6030	B	C	22I
R6031	B	C	21K
R6032	B	C	20G
R6033	B	C	21G
R6034	B	C	22I
R6035	B	C	22H
R6037	B	C	22H
R6038	B	C	22L
R6039	B	C	22H
R6050	B	C	21O
R6051	B	C	22O
R6052	B	C	22O
R6053	B	C	22P
R6080	B	C	21G
R6081	B	C	21G
R6082	B	C	22N
R6101	B	C	19P
R6102	B	C	20P
R6508	B	C	21F
R6509	B	C	21G
R6510	B	C	21F
R6511	B	C	21G
R6551	B	C	21I
R6552	B	C	21I
R6553	A	D	21D
R6554	B	C	22E
R7202	B	C	16P
R7203	B	C	16P
R7204	A	D	15P
R7501	B	C	12P
R7502	B	C	13P
R7503	B	C	12O
R7504	B	C	13O
R7506	B	C	9P
R7507	B	C	9P
R7509	B	C	9P
R7511	B	C	9P
R7513	B	C	7P
R7514	B	C	8P
R7515	B	C	7O
R7516	B	C	8P
R7517	B	C	9P
R7518	B	C	9O
R7519	A	D	9O
R7520	B	C	8O
R7521	A	D	8O
R7522	B	C	8O
R7523	B	C	11P
R7524	B	C	11P
R7525	B	C	11Q
R7526	B	C	11P
R7527	B	C	11P
R7528	B	C	10P
R7529	B	C	10P
R7530	B	C	21A
R7531	B	C	11P
R7532	B	C	12O
R7533	B	C	12O
R7534	B	C	12P
R7535	B	C	13O
R7536	B	C	15P
R7537	B	C	14P
R7538	B	C	13O
R7541	A	D	11O
R7542	B	C	11O
TEST POINT			
TP106	A	D	21H
TP111	A	D	15M
TP2033	A	D	8M
TP2034	A	D	21H
TP2253	A	D	16L
TP2254	A	D	16L
TP3901	B	C	8C
TP3902	B	C	8B
TP3903	B	C	11C
TP3904	B	C	11C
TP3905	B	C	12B
TP4001	A	D	9M
OTHER			
CF2501	A	D	18D
CF3301	A	D	16C
CF6031	A	D	21J
CP3501	A	D	14A
CP4001	A	D	5J
CP5301	A	D	1E
CP5302	A	D	4G
CP5303	A	D	4E
F5001	A	D	1P
GND1	A	D	19K
GND2	A	D	21P
K5101	A	D	3K
LC2501	A	D	20B
LF5001	A	D	2P
LF5002	A	D	4O
LPF2501	A	D	21C
PC3001	A	D	17A
PC3002	A	D	9C
PC5101	A	D	4L
PC5102	A	D	4M
PC5301	A	D	2D
S3002	A	D	7A
S6050	A	D	17P
SG5001	A	D	3P
T2051	A	D	6J
T2052	A	D	20F
T5001	A	D	1J
TU6001	A	D	21P
VA5001	A	D	2O
VA5002	A	D	4P
VR2251	A	D	19L
WR1	A	D	16I
WR2	A	D	14O
WR3	A	D	11I
WR4	A	D	21I
X1	A	D	14J
X2	A	D	14J
X3001	A	D	11C
X3002	A	D	12C

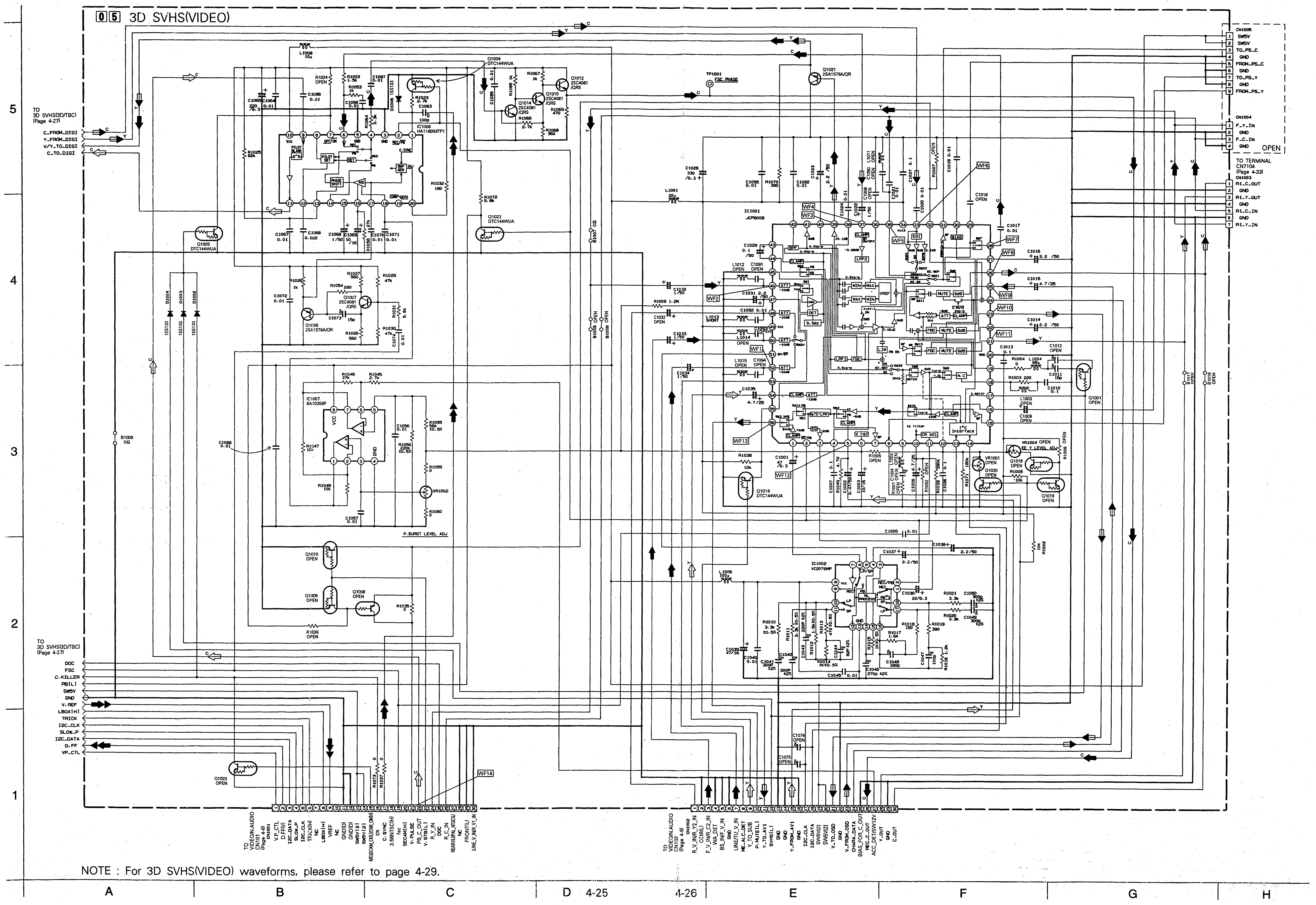
4.10 MAIN AND A/C HEAD CIRCUIT BOARDS


DANGEROUS VOLTAGE
LIVE BRN
NEUTRAL BLU
PRIMARY
REG
AV
TERM
FM
TUNER
VSC
SYSCON
03 MAIN PWB
LPB10048-001D

— A/C HEAD —

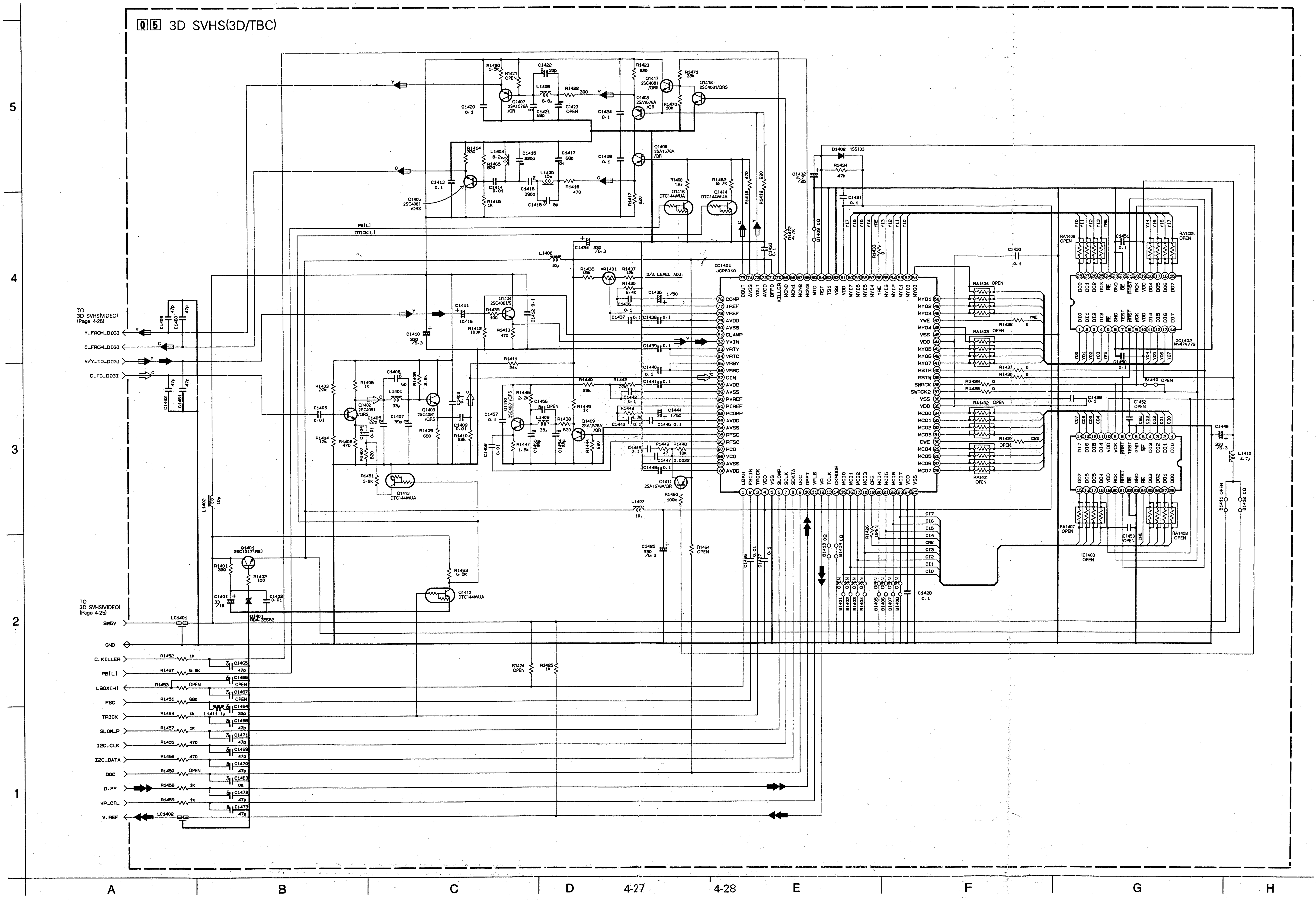

LPB10010-001A
1
2
6
7
UL MARK
A/C HEAD
PWB
1
2

4.11 3D SVHS(VIDEO) SCHEMATIC DIAGRAM


05 3D SVHS(VIDEO)
TO 3D SVHS(3D/TBC) (Page 4-27)
C_FROM_DIGI
Y_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
IC1006 HA118092FP1
IC1007 BA10358F
IC1001 JCP8008
IC1002 VC2076MP
Q1004 DTC144WUA
Q1012 2SC4081 /QRS
Q1015 2SC4081 /QRS
Q1014 2SC4081 /QRS
Q1021 2SA1576A/QR
Q1005 DTC144WUA
Q1022 DTC144WUA
Q1007 2SC4081 /QRS
Q1006 2SA1576A/QR
Q1016 DTC144WUA
Q1001 OPEN
Q1018 OPEN
Q1019 OPEN
Q1020 OPEN
Q1010 OPEN
Q1009 OPEN
Q1008 OPEN
Q1023 OPEN
TP1001 FSC PHASE
VR1001 OPEN
VR1002
VR1004 OPEN EE Y LEVEL ADJ
P.BURST LEVEL ADJ
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
CN1005
SW5V
SW5V
TO_PS_C
GND
FROM_PS_C
GND
TO_PS_Y
GND
FROM_PS_Y
CN1004
F_Y_IN
GND
F_C_IN
GND
OPEN
TO TERMINAL CN7104 (Page 4-33)
CN1003
R1_C_OUT
GND
R1_Y_OUT
GND
R1_C_IN
GND
R1_Y_IN
TO 3D SVHS(3D/TBC) (Page 4-27)
DOC
FSC
C-KILLER
PB(L)
SW5V
GND
V.REF
LBOX(H)
TRICK
I2C_CLK
SLOW_P
I2C_DATA
D.FF
VP_CTL
TO VIDEO/N.AUDIO CN101 (Page 4-6) CN1001
V.P_CTL
D.FF(V)
I2C_DATA
SLOW_P
I2C_CLK
TRICK(H)
NC
LBOX(H)
VREF
NC
GND(D)
GND(D)
SW5V(2)
SW5V(2)
MESECAM_CK(L)/CNR_ON(H)
CK
C.SYNC
3.58NTSC(H)
fsc
SECAM(H)
V.PULSE
PB_C_OUT
V.STB(L)
R_Y_IN
DOC
R_C_IN
REAR1(L)/PAL_NTSC(L)
NC
FRONT(L)
LINE_V_IN/R_V1_IN
TO VIDEO/N.AUDIO CN102 (Page 4-6) CN1002
R_V_IN/R_Y2_IN
CCIR(L)
F_V_IN/R_C2_IN
WA_DET
BS_IN/F_V_IN
GND
LINE/TU_V_IN
ME_ALC_DET
Y_TO_SUB
P.MUTE(L)
Y_TO_AV1
SVHS(L)
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V(2)
SW5V(2)
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
BIAS_FOR_C_OUT
REC_C_OUT
ACC_DET/SW12V
Y_OUT
GND
C_OUT
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : For 3D SVHS(VIDEO) waveforms, please refer to page 4-29.

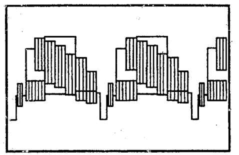
4.12 3D SVHS(3D/TBC) SCHEMATIC DIAGRAM


05 3D SVHS(3D/TBC)
TO 3D SVHS(VIDEO) (Page 4-25)
Y_FROM_DIGI
C_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
SW5V
GND
C.KILLER
PB(L)
LBOX(H)
FSC
TRICK
SLOW_P
I2C_CLK
I2C_DATA
DOC
D.FF
VP_CTL
V.REF
IC1401 JCP8010
IC1402 MN47V77S
IC1403 OPEN
D/A LEVEL ADJ.
VR1401
D1401 RD4.3ESB2
D1402 1SS133
Q1401 2SC1317(RS)
Q1405 2SC4081/QRS
Q1407 2SA1576A/QR
Q1408 2SA1576A/QR
Q1417 2SC4081/QRS
Q1418 2SC4081/QRS
Q1406 2SA1576A/QR
Q1416 DTC144WUA
Q1414 DTC144WUA
Q1404 2SC4081/S
Q1402 2SC4081/QRS
Q1403 2SC4081/QRS
Q1410 2SC4081/QRS
Q1409 2SA1576A/QR
Q1413 DTC144WUA
Q1412 DTC144WUA
Q1411 2SA1576A/QR
RA1401
RA1402
RA1403
RA1404
RA1405 OPEN
RA1406 OPEN
RA1407 OPEN
RA1408 OPEN
PB(L)
TRICK(L)
A
B
C
D
E
F
G
H
1
2
3
4
5

WAVEFORMS

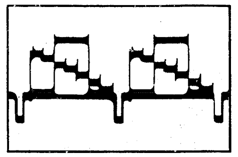
— 3D SVHS(VIDEO) —

WF1 IC1001-52



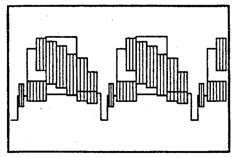
REC 0.76 Vp-p
20 mV/20 µsec/DIV

WF2 IC1001-46



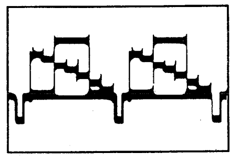
REC 1.0 Vp-p
20 mV/20 µsec/DIV

WF3 IC1001-39



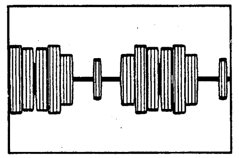
REC 1.8 Vp-p
50 mV/20 µsec/DIV

WF4 IC1001-37



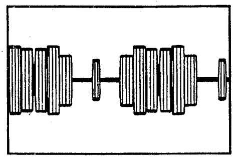
REC/PB 0.8 Vp-p
20 mV/20 µsec/DIV

WF5 IC1001-35



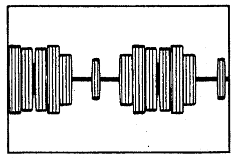
REC 0.65 Vp-p
20 mV/20 µsec/DIV

WF6-1 IC1001-33



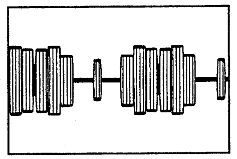
REC 0.35 Vp-p
10 mV/20 µsec/DIV

WF6-2 IC1001-33



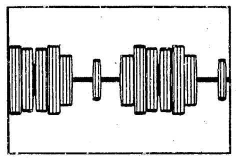
PB 0.5 Vp-p
10 mV/20 µsec/DIV

WF7 IC1001-28



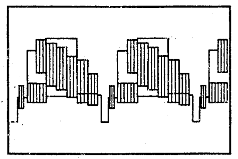
REC 0.7 Vp-p
20 mV/20 µsec/DIV

WF8 IC1001-26



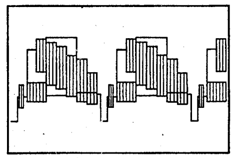
REC/PB 1.5 Vp-p
50 mV/20 µsec/DIV

WF9 IC1001-25



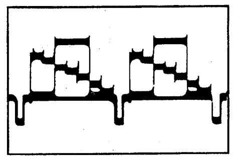
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF10 IC1001-23



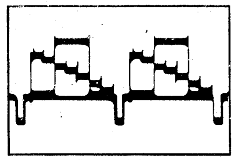
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF11 IC1001-21



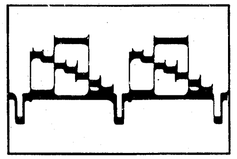
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF12 IC1001-5



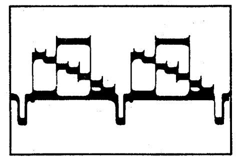
PB 0.56 Vp-p
20 mV/20 µsec/DIV

WF13-1 IC1001-56



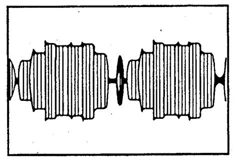
REC 0.52 Vp-p
20 mV/20 µsec/DIV

WF13-2 IC1001-56



PB 0.56 Vp-p
20 mV/20 µsec/DIV

WF14 CN1001-22



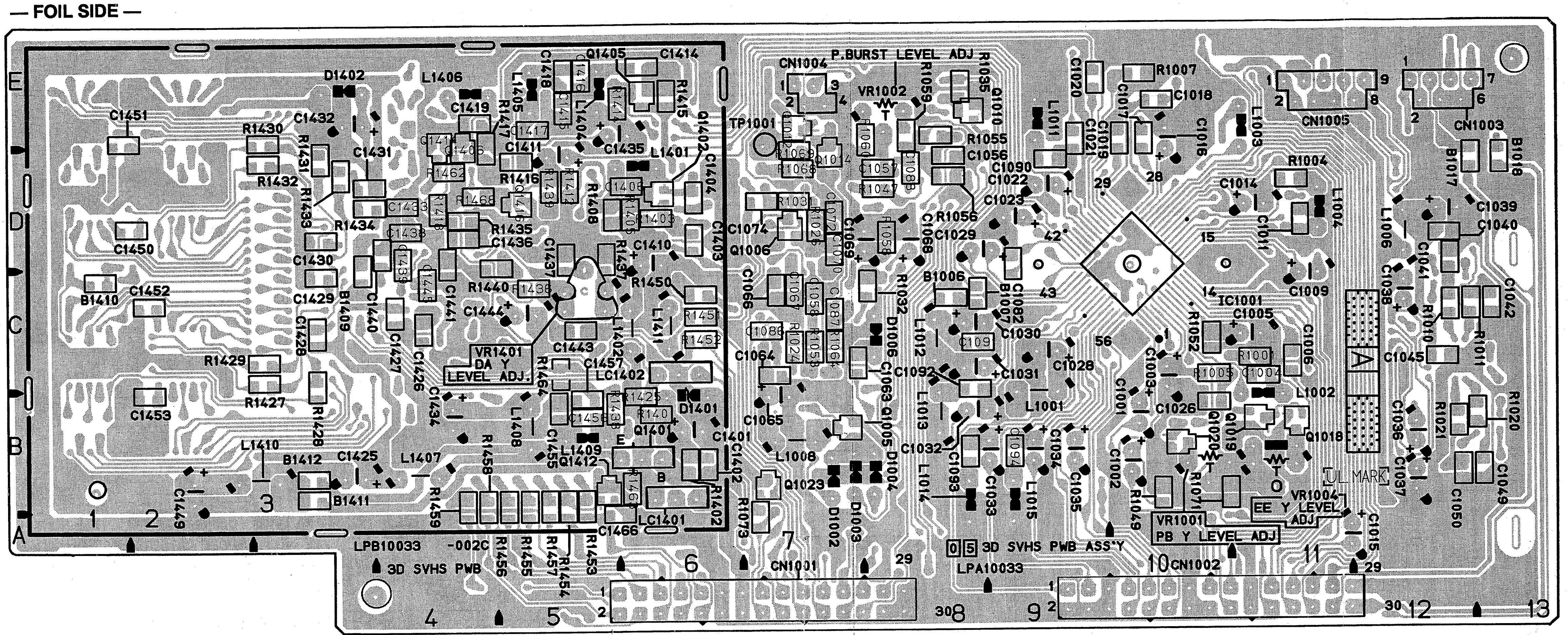
PB 0.62 Vp-p
20 mV/20 µsec/DIV

COMPONENT PARTS LOCATION GUIDE <3D SVHS>

REF.NO.	LOCATION		
CAPACITOR			
C1001	A	D	10B
C1002	A	D	10B
C1003	A	D	10C
C1004	B	C	11C
C1005	A	D	11C
C1006	B	C	11C
C1007	A	C	10C
C1008	A	C	9D
C1009	A	D	11C
C1010	A	C	10D
C1011	B	C	11D
C1012	A	C	11D
C1013	A	C	9C
C1014	A	D	11D
C1015	A	D	12A
C1016	A	D	10D
C1017	B	C	10E
C1018	B	C	10E
C1019	B	C	10E
C1020	B	C	9E
C1021	B	C	9E
C1022	A	D	9D
C1023	A	D	9D
C1024	A	C	9C
C1026	B	C	10B
C1027	A	C	10D
C1028	A	D	9C
C1029	A	D	9D
C1030	A	D	8C
C1031	A	D	9C
C1032	A	D	9B
C1033	A	D	9B
C1034	A	D	9B
C1035	A	D	9B
C1036	A	D	12B
C1037	A	D	12B
C1038	A	D	12C
C1039	A	D	12D
C1040	B	C	12D
C1041	B	C	12D
C1042	B	C	13C
C1043	A	C	12C
C1044	A	C	13C
C1045	B	C	12C
C1046	A	C	13C
C1047	A	C	12B
C1048	A	C	13B
C1049	B	C	13B
C1050	B	C	12B
C1056	B	C	8D
C1057	B	C	8D
C1058	B	C	7C
C1063	B	C	7C
C1064	B	C	7C
C1065	A	D	7B
C1066	B	C	7C
C1067	B	C	7C
C1068	A	D	8D
C1069	A	D	8D
C1070	B	C	7D
C1071	A	C	8D
C1072	B	C	7D
C1073	A	C	7D
C1074	B	C	7D
C1075	A	C	10A
C1076	A	C	10A
C1082	B	C	9D
C1086	B	C	7C
C1087	B	C	7C
C1088	B	C	8D
C1089	A	C	7E
C1090	B	C	9D
C1091	B	C	8C
C1092	B	C	8B
C1093	B	C	8B
C1094	B	C	9B
C1095	A	C	10D
C1401	A	D	6B
C1402	B	C	6B
C1403	B	C	6D
C1404	B	C	6D
C1405	A	C	6D
C1406	B	C	6D
C1407	A	C	5D
C1408	A	C	5D
C1409	A	C	6D
C1410	A	D	6D
C1411	A	D	5D
C1412	A	C	5D
C1413	A	C	6E
C1414	B	C	6E
C1415	B	C	5E
C1416	B	C	5E
C1417	B	C	5E
C1418	B	C	5E
C1419	B	C	4E
C1420	A	C	5D
C1421	A	C	5E
C1422	A	C	4E
C1423	A	C	4E
C1424	A	C	5D
C1425	A	D	3B
C1426	B	C	4C
C1427	B	C	4C
C1428	B	C	3C
C1429	B	C	3C
C1430	B	C	3D
C1431	B	C	3D
C1432	A	D	3E
C1433	B	C	4D
C1434	A	D	4B
C1435	A	D	5E
C1436	B	C	4D
C1437	B	C	5D
C1438	B	C	4D
C1439	B	C	4D
C1440	B	C	4D
C1441	B	C	4D
C1442	A	C	5D
C1443	B	C	5C
C1444	A	D	5C
C1445	B	C	4C
C1446	A	C	4C
C1447	A	C	4C
C1448	A	C	4C
C1449	A	D	2B
C1450	B	C	2D
C1451	B	C	1E
C1452	B	C	2C
C1453	B	C	2B
C1454	A	C	6B
C1455	B	C	5B
C1456	B	C	5B
C1457	B	C	5B
C1458	A	C	5C
C1459	A	C	6E
C1460	A	C	6E
C1461	A	C	6D
C1462	A	C	6C
C1463	A	C	6C
C1464	A	C	6C
C1465	A	C	6C
C1466	B	C	6A
C1467	A	C	5B
C1468	A	C	5B
C1469	A	C	5B
C1470	A	C	5B
C1471	A	C	5B
C1472	A	C	5B
C1473	A	C	4B
CONNECTOR			
CN1001	A	D	6A
CN1002	A	D	9A
CN1003	A	D	12E
CN1004	A	D	7E
CN1005	A	D	11E
DIODE			
D1002	A	D	7B
D1003	A	D	7B
D1004	A	D	8B
D1006	A	D	8C
D1401	A	D	6B
D1402	A	D	3E
IC			
IC1001	B	C	10D
IC1002	A	C	12C
IC1006	A	C	7C
IC1007	A	C	8D
IC1401	A	C	4D
IC1402	A	C	2D
IC1403	A	C	2C
COIL			
L1001	A	D	9B
L1002	A	D	11B
L1003	A	D	11D
L1004	A	D	11D
L1006	A	D	12D
L1008	A	D	7B
L1011	A	D	9E
L1012	A	D	8C
L1013	A	D	8B
L1014	A	D	8A
L1015	A	D	9A
L1401	A	D	6D
L1402	A	D	6C
L1404	A	D	5E
L1405	A	D	5E
L1406	A	D	4E
L1407	A	D	4B
L1408	A	D	5B
L1409	A	D	5B
L1410	A	D	3B
L1411	A	D	6C
TRANSISTOR			
Q1001	A	C	11D
Q1004	A	C	8B
Q1005	B	C	7B
Q1006	B	C	7D
Q1007	A	C	7D
Q1008	A	C	8E
Q1009	A	C	8E
Q1010	B	C	8E
Q1012	B	C	7E
Q1014	B	C	7D
Q1015	A	C	7E
Q1016	A	C	10C
Q1018	B	C	11B
Q1019	B	C	11B
Q1020	B	C	10B
Q1021	A	C	9D
Q1022	A	C	7E
Q1023	B	C	7B
Q1401	A	D	6B
Q1402	B	C	6D
Q1403	A	C	6D
Q1404	A	C	5D
Q1405	B	C	6E
Q1406	B	C	4D
Q1407	A	C	5E
Q1408	A	C	4D
Q1409	A	C	6B
Q1410	A	C	5B
Q1411	A	C	5C
Q1412	B	C	5B
Q1413	A	C	6D
Q1414	B	C	4D
Q1416	B	C	5D
Q1417	A	C	4D
Q1418	A	C	4E
RESISTOR			
R1001	B	C	11C
R1002	A	C	10C
R1003	A	C	10D
R1004	B	C	11D
R1005	B	C	10C
R1006	A	C	10B
R1007	B	C	10E
R1008	A	C	10B
R1009	A	C	9C
R1010	B	C	12C
R1011	B	C	12C
R1012	A	C	12C
R1013	A	C	13C
R1014	A	C	13C
R1015	A	C	13C
R1016	A	C	12B
R1017	A	C	13B
R1018	A	C	13B
R1019	A	C	12B
R1020	B	C	13B
R1021	B	C	12B
R1023	A	C	8C
R1024	B	C	7C
R1025	A	C	7D
R1026	B	C	7D
R1027	A	C	7D
R1028	A	C	7D
R1029	A	C	7D
R1030	A	C	7D
R1031	B	C	7D
R1032	B	C	8C
R1035	B	C	8E
R1036	A	C	9E
R1037	A	C	7A
R1038	A	C	9C
R1039	A	C	9C
R1045	A	C	8D
R1046	A	C	8D
R1047	B	C	8D
R1048	A	C	8D
R1049	B	C	10B
R1052	B	C	10C
R1053	B	C	7C
R1054	A	C	7D
R1055	B	C	8E
R1056	B	C	8D
R1058	B	C	8D
R1059	B	C	8E
R1060	B	C	8E
R1063	A	C	7B
R1064	B	C	7C
R1065	A	C	7E
R1066	A	C	7D
R1067	A	C	7E
R1068	B	C	7D
R1069	B	C	7D
R1070	A	C	10D
R1071	B	C	11B
R1072	A	C	7D
R1073	B	C	7A
R1401	B	C	6B
R1402	B	C	6B
R1403	B	C	6D
R1404	A	C	6D
R1405	B	C	6D
R1406	A	C	6D
R1407	A	C	6D
R1408	B	C	5D
R1409	A	C	6D
R1410	A	C	5D
R1411	A	C	5D
R1412	B	C	5D
R1413	A	C	5D
R1414	B	C	6E
R1415	B	C	6E
R1416	B	C	5D
R1417	B	C	4D
R1418	B	C	4D
R1419	A	C	4D
R1420	A	C	5E
R1421	A	C	4E
R1422	A	C	4E
R1423	A	C	4D
R1424	A	C	5B
R1425	B	C	6B
R1426	A	C	3B
R1427	B	C	3C
R1428	B	C	3C
R1429	B	C	3C
R1430	B	C	3E
R1431	B	C	3D
R1432	B	C	3D
R1433	B	C	3D
R1434	B	C	3D
R1435	B	C	4D
R1436	B	C	5C
R1437	B	C	5D
R1438	B	C	5B
R1439	B	C	5D
R1440	B	C	5D
R1442	A	C	5D
R1443	A	C	5C
R1444	A	C	6B
R1445	A	C	5B
R1446	A	C	5B
R1447	A	C	5C
R1448	A	C	4C
R1449	A	C	5C
R1450	B	C	6C
R1451	B	C	6C
R1452	B	C	6C
R1453	B	C	5B
R1454	B	C	5B
R1455	B	C	5B
R1456	B	C	5B
R1457	B	C	5B
R1458	B	C	4B
R1459	B	C	4B
R1460	A	C	5B
R1461	A	C	6D
R1462	B	C	4D
R1463	B	C	6B
R1464	B	C	5C
R1465	A	C	6E
R1467	A	C	6E
R1468	B	C	4D
R1470	A	C	4E
R1471	A	C	4E
R1472	A	C	4E
OTHER			
LC1401	A	D	6B
LC1402	A	D	6C
RA1401	A	C	3C
RA1402	A	C	3C
RA1403	A	C	3D
RA1404	A	C	3D
RA1405	A	C	1E
RA1406	A	C	2E
RA1407	A	C	2B
RA1408	A	C	1B
TP1001	A	D	7E
VR1001	A	D	10B
VR1002	A	D	8E
VR1004	A	D	11B
VR1401	A	D	5C

4.13 3D SVHS CIRCUIT BOARD

— FOIL SIDE —


P.BURST LEVEL ADJ
CN1004
VR1002
TP1001
CN1005
CN1003
IC1001
VR1401
DA Y
LEVEL ADJ.
LC1402
LC1401
VR1004
EE Y LEVEL
ADJ
VR1001
PB Y LEVEL ADJ
UL MARK
LPB10033 -002C
3D SVHS PWB
0 5 3D SVHS PWB ASS'Y
LPA10033
CN1001
CN1002
D1402
L1406
Q1405
C1414
C1451
R1430
C1432
C1450
B1410
C1452
C1453
R1429
R1427
L1410
B1412
C1425
L1407
B1411
C1449
R1459
R1458
R1456
R1455
R1457
R1454
R1453
C1466
L1401
D1401
Q1401
Q1412
L1409
Q1402
R1007
C1018
C1020
L1003
R1004
C1039
C1040
C1042
R1011
R1020
C1049
C1050
R1021
L1002
Q1018
Q1019
Q1020
C1026
C1028
L1001
C1033
C1035
L1015
Q1023
D1002
D1003
D1004
L1008
C1065
C1064
Q1006
C1074
C1066
L1006
L1012
L1013
L1014
C1015
A
B
C
D
E
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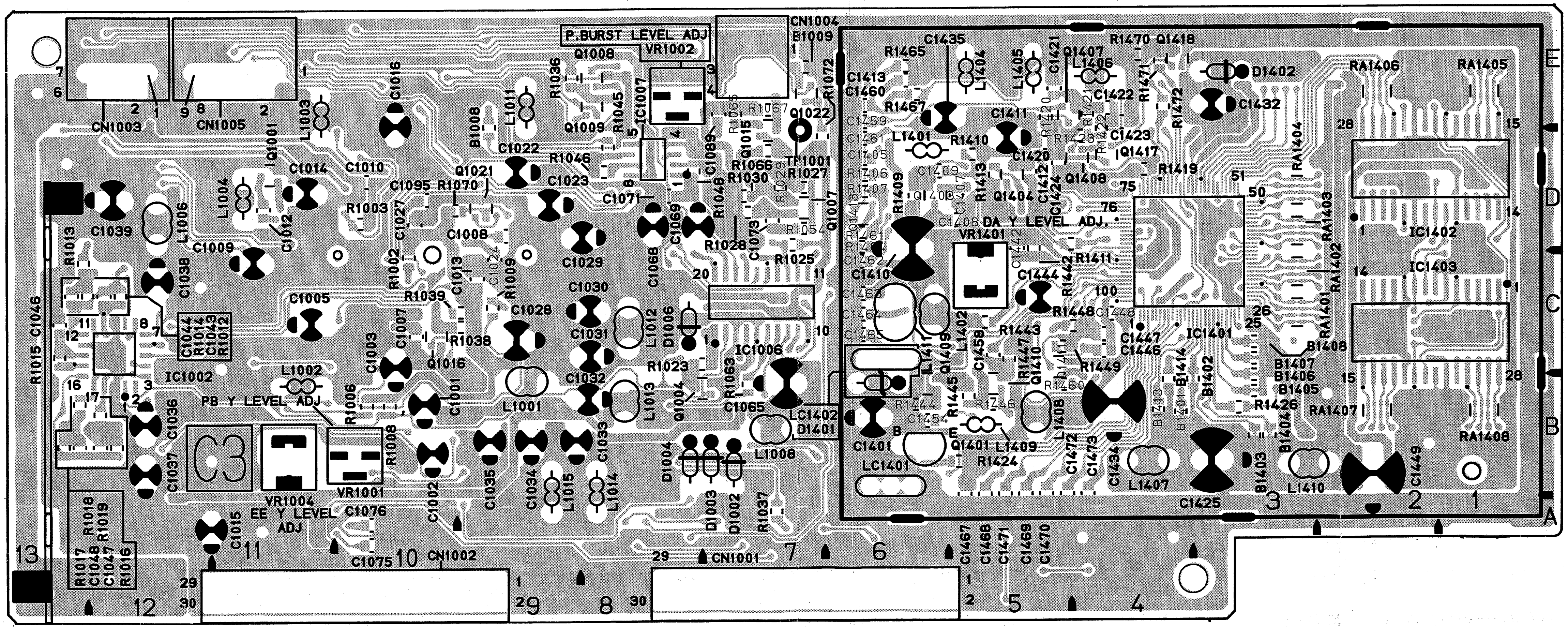
— COMPONENT SIDE —


P.BURST LEVEL ADJ
Q1008
VR1002
CN1004
B1009
CN1003
CN1005
IC1007
Q1022
TP1001
IC1006
IC1002
PB Y LEVEL ADJ
C3
VR1004
VR1001
EE Y LEVEL
ADJ
CN1002
CN1001
R1465
C1435
R1470
Q1418
D1402
C1432
RA1406
RA1405
RA1404
RA1403
RA1402
RA1401
IC1402
IC1403
IC1401
VR1401
DA Y LEVEL ADJ.
LC1402
D1401
LC1401
Q1401
L1409
R1424
L1407
C1425
L1410
C1449
RA1407
RA1408
B1408
B1407
B1406
B1405
B1404
B1403
B1402
C1039
C1038
C1036
C1037
C1005
C1009
C1014
C1010
C1016
C1022
C1023
C1029
C1030
C1031
C1032
C1033
C1034
C1035
L1001
L1002
L1003
L1004
L1006
L1008
L1011
L1012
L1013
L1014
L1015
D1002
D1003
D1004
D1006
Q1004
Q1007
Q1009
Q1015
Q1016
Q1021
R1013
R1015
C1046
R1017
C1048
C1047
R1016
R1018
R1019
C1015
C1075
C1076
C1467
C1468
C1471
C1469
C1470
A
B
C
D
E
1
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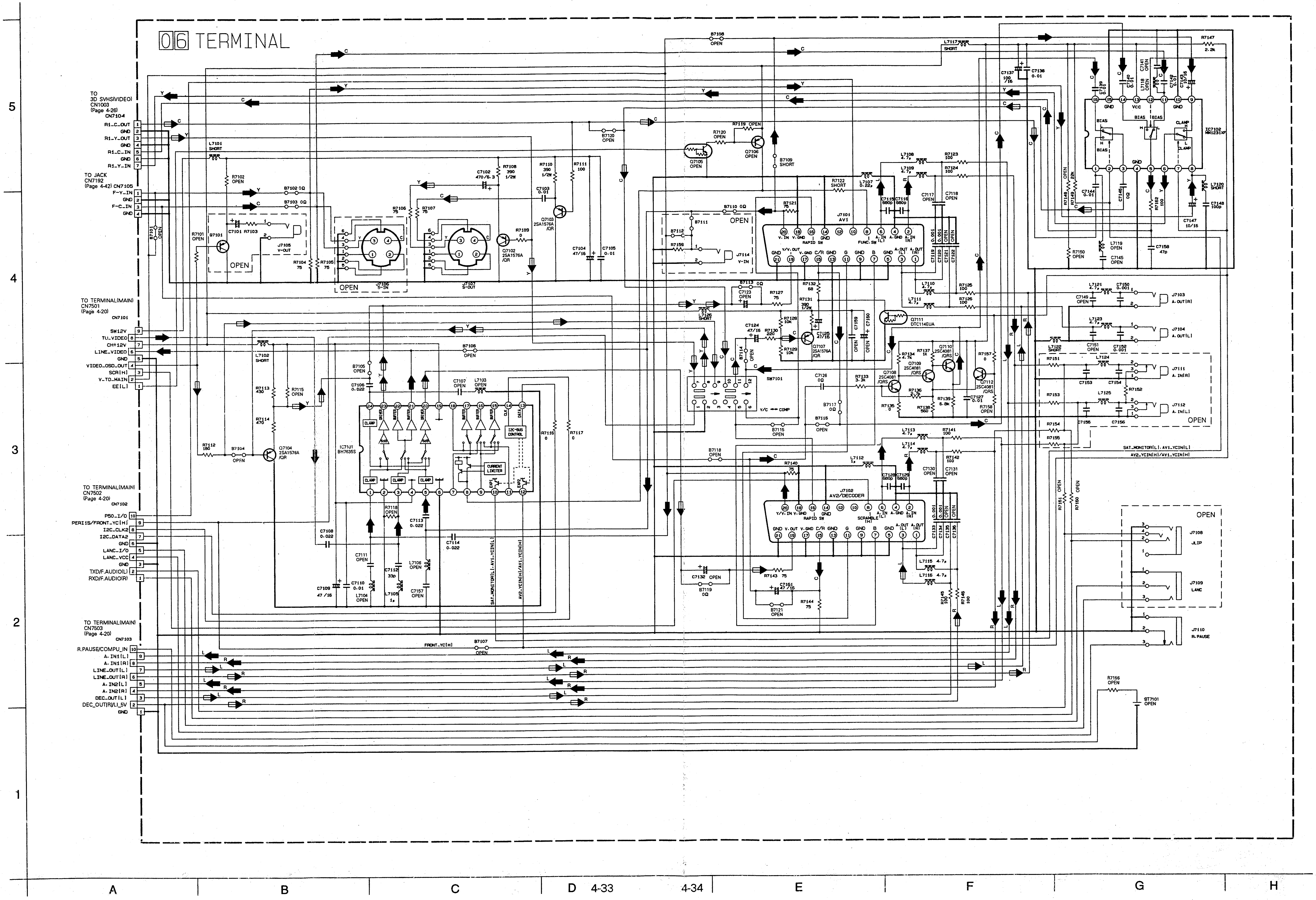
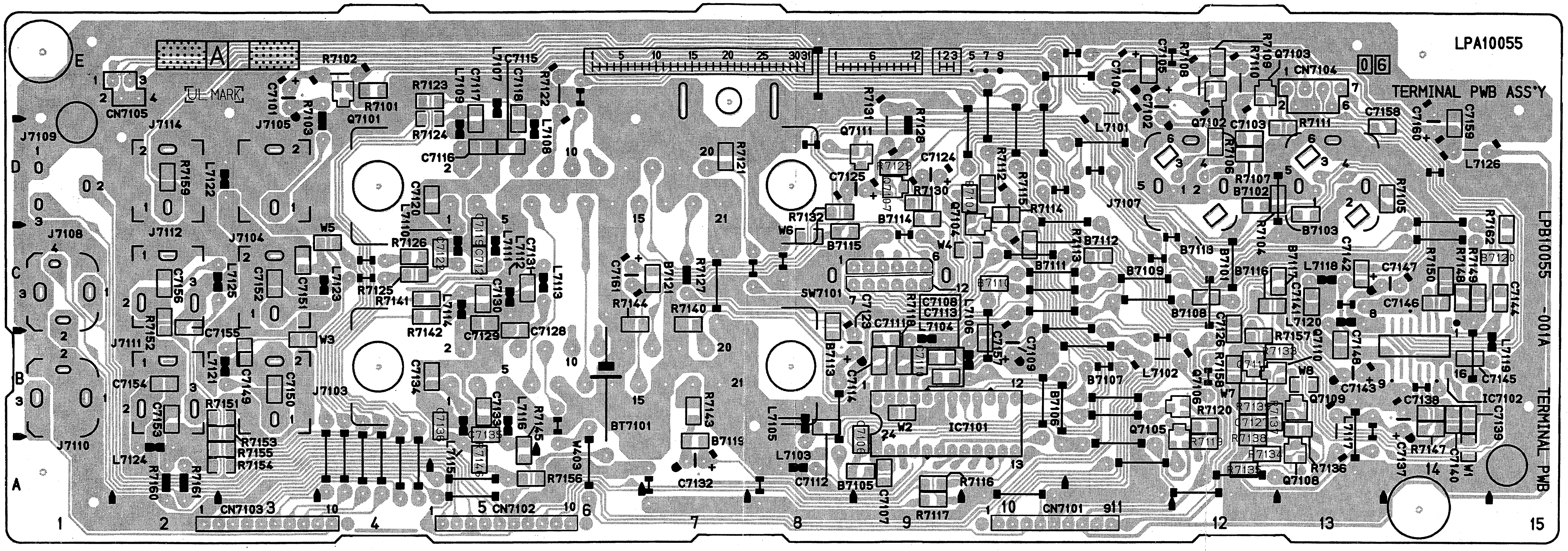
4.14 TERMINAL SCHEMATIC DIAGRAM


06 TERMINAL
TO 3D SVHS(VIDEO) CN1003 (Page 4-26)
CN7104
R1_C_OUT
GND
R1_Y_OUT
GND
R1_C_IN
GND
R1_Y_IN
TO JACK CN7192 (Page 4-42) CN7105
F-Y_IN
GND
F-C_IN
GND
TO TERMINAL(MAIN) CN7501 (Page 4-20)
CN7101
SW12V
TU_VIDEO
CH+12V
LINE_VIDEO
GND
VIDEO_OSD_OUT
SCR(H)
Y_TO_MAIN
EE(L)
TO TERMINAL(MAIN) CN7502 (Page 4-20)
CN7102
P50_I/O
PERI1S/FRONT_YC(H)
I2C_CLK2
I2C_DATA2
GND
LANC_I/O
LANC_VCC
GND
TXD/F.AUDIO(L)
RXD/F.AUDIO(R)
TO TERMINAL(MAIN) CN7503 (Page 4-20)
CN7103
R.PAUSE/COMPU_IN
A.IN1(L)
A.IN1(R)
LINE_OUT(L)
LINE_OUT(R)
A.IN2(L)
A.IN2(R)
DEC_OUT(L)
DEC_OUT(R)/L_5V
GND
J7105 V-OUT
J7106 S-IN
J7107 S-OUT
J7114 V-IN
IC7101 BH7635S
CLAMP
BUFFER
DRIVER
I2C-BUS CONTROL
CURRENT LIMITER
Q7101
Q7102 2SA1576A /QR
Q7103 2SA1576A /QR
Q7104 2SA1576A /QR
Q7105
Q7106
Q7107 2SA1576A /QR
Q7108 2SC4081 /QRS
Q7109 2SC4081 /QRS
Q7110 2SC4081 /QRS
Q7111 DTC114EUA
Q7112 2SC4081 /QRS
J7101 AV1
J7102 AV2/DECODER
RAPID SW
FUNC.SW
SCRAMBLE (H)
SW7101
Y/C ↔ COMP
IC7102 NM1231XP
BIAS
CLAMP
VCC
GND
J7103 A.OUT(R)
J7104 A.OUT(L)
J7111 A.IN(R)
J7112 A.IN(L)
J7108 JLIP
J7109 LANC
J7110 R.PAUSE
ST7101 OPEN
SAT_MONITOR(L)AV1_YCIN(L)
AV2_YCIN(H)/AV1_YCIN(H)
FRONT_YC(H)
OPEN
SHORT
Y
C
L
R
5
4
3
2
1
A
B
C
D
E
F
G
H

4.15 TERMINAL CIRCUIT BOARD


LPA10055
TERMINAL PWB ASS'Y
LPB10055 -001A TERMINAL PWB
UL MARK
A
06
A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
CN7101
CN7102
CN7103
CN7104
CN7105
J7103
J7104
J7105
J7107
J7108
J7109
J7110
J7111
J7112
J7114
IC7101
IC7102
BT7101
SW7101
Q7101
Q7102
Q7103
Q7104
Q7105
Q7106
Q7108
Q7109
Q7110
Q7111
W1
W2
W3
W4
W5
W6
W7
W8
W403

COMPONENT PARTS LOCATION GUIDE <TERMINAL>

REF.NO.	LOCATION		
CAPACITOR			
C7101	A	D	3E
C7102	A	D	11E
C7103	B	C	12D
C7104	A	D	11E
C7105	B	C	11E
C7106	B	C	9A
C7107	B	C	9A
C7108	B	C	9B
C7109	A	D	10B
C7110	B	C	9B
C7111	B	C	9B
C7112	B	C	8B
C7113	B	C	9B
C7114	B	C	9B
C7115	B	C	5D
C7116	B	C	5D
C7117	B	C	5E
C7118	B	C	5E
C7119	B	C	5C
C7120	B	C	5D
C7121	B	C	5C
C7122	B	C	5C
C7123	A	D	9B
C7124	A	D	9D
C7125	A	D	9D
C7126	B	C	12C
C7127	B	C	12B

REF.NO.	LOCATION		
C7128	B	C	5C
C7129	B	C	5C
C7130	B	C	5C
C7131	B	C	5C
C7132	A	D	7A
C7133	B	C	5B
C7134	B	C	5B
C7135	B	C	5B
C7136	B	C	5B
C7137	A	D	14B
C7138	B	C	14B
C7139	B	C	14B
C7140	B	C	14B
C7141	B	C	13C
C7142	B	C	13C
C7143	A	D	13B
C7144	B	C	15C
C7145	B	C	14B
C7146	B	C	14C
C7147	A	D	13C
C7148	B	C	13B
C7149	B	C	3B
C7150	B	C	3B
C7151	B	C	3C
C7152	B	C	3C
C7153	B	C	2B
C7154	B	C	2B
C7155	B	C	2C

REF.NO.	LOCATION		
C7156	B	C	2C
C7157	B	C	10B
C7158	B	C	13D
C7159	B	C	14D
C7160	A	D	14D
C7161	A	D	6C
CONNECTOR			
CN7101	A	D	10A
CN7102	A	D	5A
CN7103	A	D	2A
CN7104	A	D	13E
CN7105	A	D	2E
IC			
IC7101	A	D	9B
IC7102	B	C	14B
JACK			
J7101	A	D	6D
J7102	A	D	6B
J7103	A	D	3B
J7104	A	D	3C
J7105	A	D	3D
J7106	A	D	13D
J7107	A	D	12D
J7108	A	D	1C
J7109	A	D	1D
J7110	A	D	1B

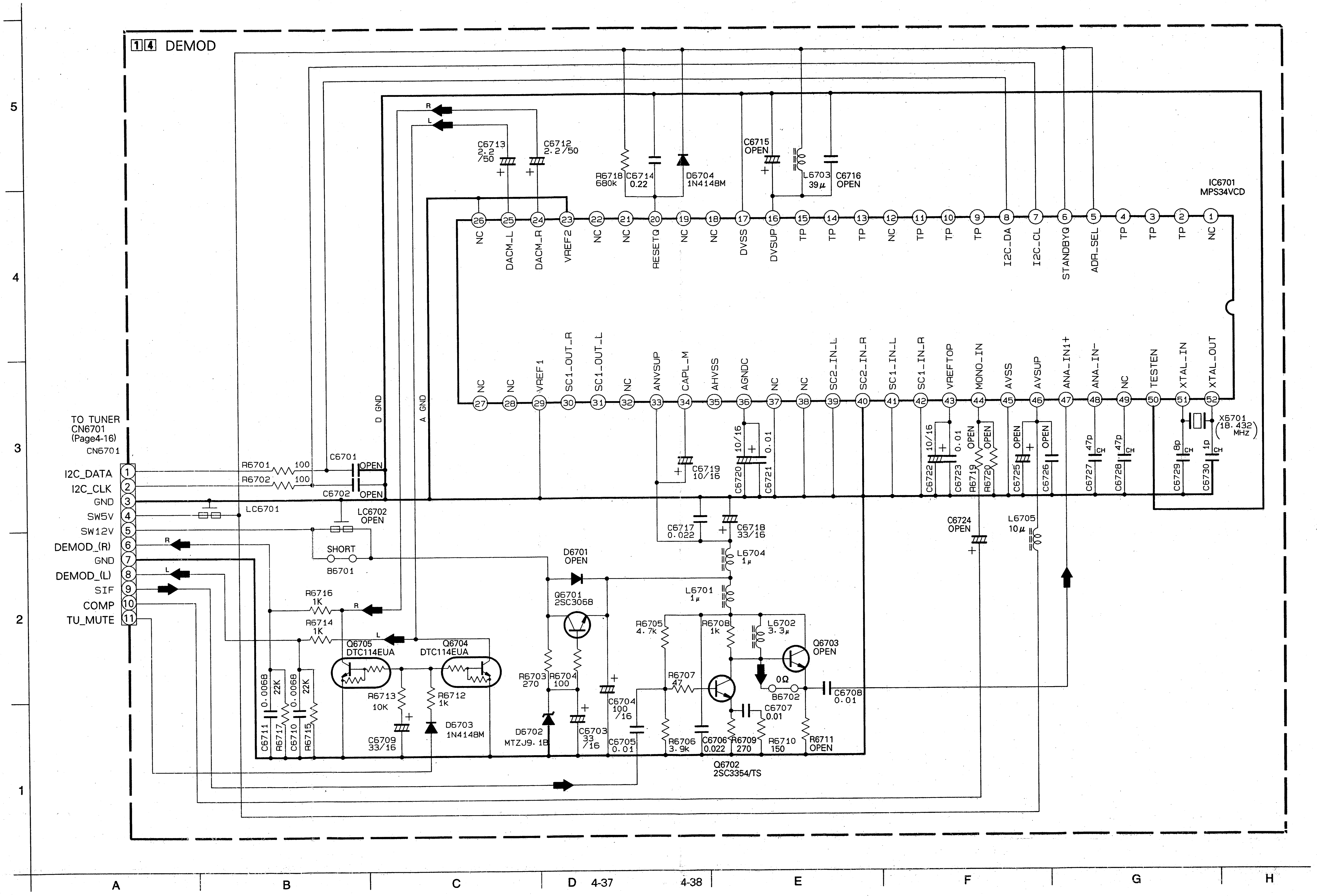
REF.NO.	LOCATION		
J7111	A	D	2B
J7112	A	D	2C
J7114	A	D	2D
COIL			
L7101	A	D	11E
L7102	A	D	12B
L7103	A	D	8A
L7104	A	D	9B
L7105	A	D	8A
L7106	A	D	10B
L7107	A	D	5E
L7108	A	D	5D
L7109	A	D	5D
L7110	A	D	5C
L7111	A	D	5C
L7112	A	D	5C
L7113	A	D	6C
L7114	A	D	5C
L7115	A	D	5B
L7116	A	D	5B
L7117	A	D	13A
L7118	A	D	13C
L7119	A	D	15B
L7120	A	D	13C
L7121	A	D	3B
L7122	A	D	3D
L7123	A	D	4C
L7124	A	D	2A

REF.NO.	LOCATION		
L7125	A	D	3C
L7126	A	D	14D
TRANSISTOR			
Q7101	B	C	4E
Q7102	B	C	12E
Q7103	B	C	12E
Q7104	B	C	10D
Q7105	B	C	12B
Q7106	B	C	12B
Q7107	B	C	9D
Q7108	B	C	13A
Q7109	B	C	13B
Q7110	B	C	12B
Q7111	B	C	9D
Q7112	B	C	12B
RESISTOR			
R7101	B	C	4E
R7102	A	D	3E
R7103	A	D	3E
R7104	B	C	12D
R7105	B	C	14D
R7106	B	C	12D
R7107	B	C	12D
R7108	A	D	12E
R7109	B	C	12E
R7110	A	D	12E
R7111	B	C	13D

REF.NO.	LOCATION		
R7112	B	C	10D
R7113	B	C	10C
R7114	B	C	10D
R7115	A	D	10C
R7116	B	C	9A
R7117	B	C	9A
R7118	B	C	9B
R7119	B	C	12A
R7120	B	C	12B
R7121	B	C	7D
R7122	A	D	6E
R7123	B	C	5E
R7124	B	C	5E
R7125	B	C	4C
R7126	B	C	4C
R7127	A	D	7C
R7128	A	D	9E
R7129	B	C	9D
R7130	B	C	9D
R7131	A	D	9D
R7132	B	C	8D
R7133	B	C	13B
R7134	B	C	12A
R7135	B	C	12A
R7136	B	C	13B
R7137	B	C	12B
R7138	B	C	12A
R7139	B	C	12B

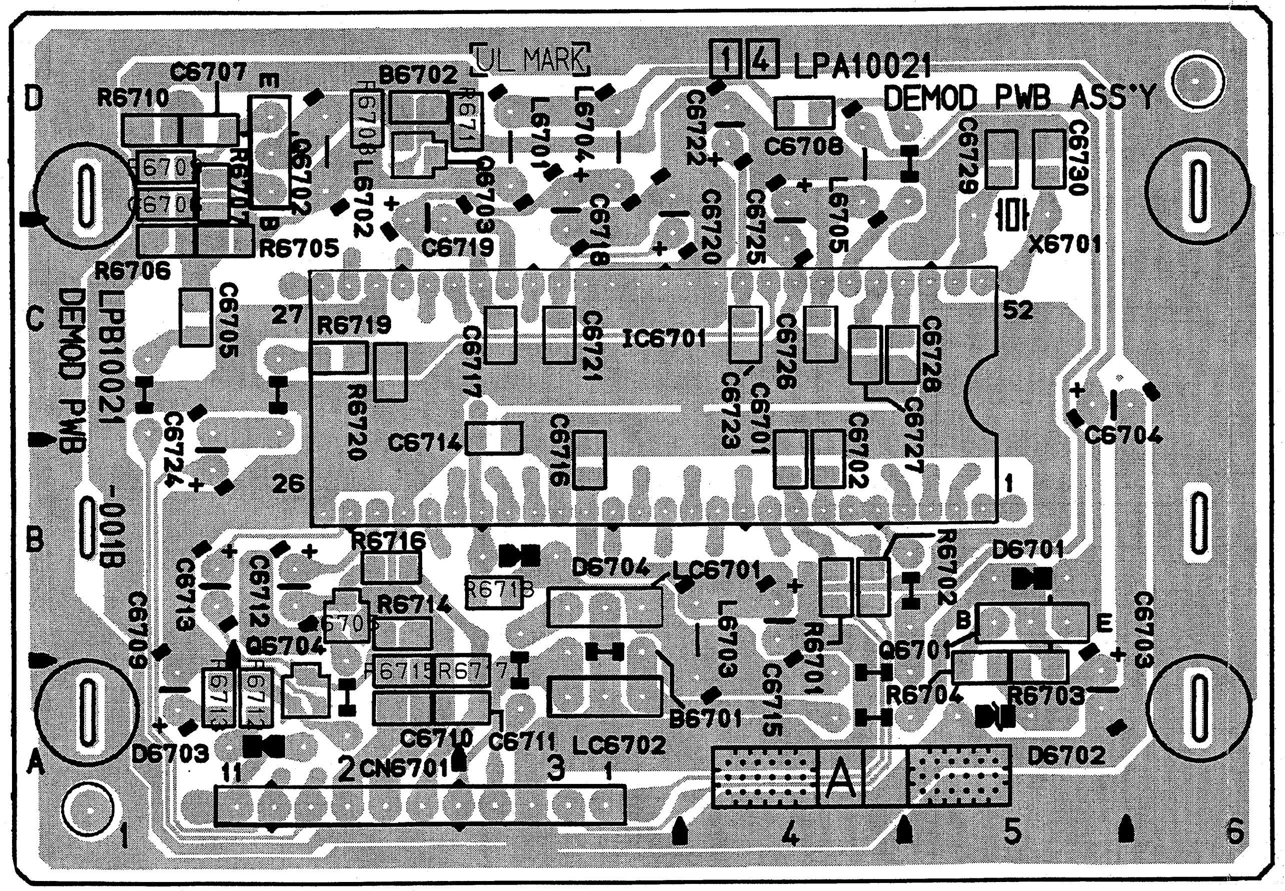
REF.NO.	LOCATION		
R7140	B	C	7C
R7141	B	C	4C
R7142	B	C	4C
R7143	B	C	7B
R7144	B	C	6C
R7145	B	C	5A
R7146	B	C	5A
R7147	B	C	14B
R7148	B	C	14C
R7149	B	C	14C
R7150	B	C	14C
R7151	B	C	3B
R7152	B	C	2C
R7153	B	C	3B
R7154	B	C	3A
R7155	B	C	3A
R7156	B	C	5A
R7157	B	C	12B
R7158	B	C	12B
R7159	B	C	2D
R7160	A	D	2A
R7161	A	D	2A
R7162	B	C	15C
OTHER			
BT7101	A	D	6B
SW7101	A	D	9C

4.16 DEMODULATOR SCHEMATIC DIAGRAM



14 DEMOD
TO TUNER
CN6701
(Page4-16)
CN6701
I2C_DATA 1
I2C_CLK 2
GND 3
SW5V 4
SW12V 5
DEMOD_(R) 6
GND 7
DEMOD_(L) 8
SIF 9
COMP 10
TU_MUTE 11
R6701 100
R6702 100
C6701 OPEN
C6702 OPEN
LC6701
LC6702 OPEN
SHORT
B6701
D GND
A GND
R
L
C6713 2.2 /50
C6712 2.2/50
R6718 680k
C6714 0.22
D6704 1N4148M
C6715 OPEN
L6703 39μ
C6716 OPEN
IC6701
MPS34VCD
26 NC
25 DACM_L
24 DACM_R
23 VREF2
22 NC
21 NC
20 RESETQ
19 NC
18 NC
17 DVSS
16 DVSUP
15 TP
14 TP
13 TP
12 NC
11 TP
10 TP
9 TP
8 I2C_DA
7 I2C_CL
6 STANDBYQ
5 ADR_SEL
4 TP
3 TP
2 TP
1 NC
27 NC
28 NC
29 VREF1
30 SC1_OUT_R
31 SC1_OUT_L
32 NC
33 ANVSUP
34 CAPL_M
35 AHVSS
36 AGNDC
37 NC
38 NC
39 SC2_IN_L
40 SC2_IN_R
41 SC1_IN_L
42 SC1_IN_R
43 VREFTOP
44 MONO_IN
45 AVSS
46 AVSUP
47 ANA_IN1+
48 ANA_IN-
49 NC
50 TESTEN
51 XTAL_IN
52 XTAL_OUT
C6719 10/16
C6720 10/16
C6721 0.01
C6722 10/16
C6723 0.01
R6719 OPEN
R6720 OPEN
C6725 OPEN
C6726 OPEN
C6727 47p CH
C6728 47p CH
C6729 8p CH
C6730 1p CH
X6701 (18.432 MHz)
C6717 0.022
C6718 33/16
L6704 1μ
C6724 OPEN
L6705 10μ
D6701 OPEN
Q6701 2SC3068
L6701 1μ
R6705 4.7k
R6708 1k
L6702 3.3μ
Q6703 OPEN
R6707 47
0Ω
B6702
C6708 0.01
C6707 0.01
R6716 1K
R6714 1K
Q6705 DTC114EUA
Q6704 DTC114EUA
R6713 10K
R6712 1k
D6703 1N4148M
C6709 33/16
R6703 270
R6704 100
D6702 MTZJ9.1B
C6703 33 /16
C6704 100 /16
C6705 0.01
R6706 3.9k
C6706 0.022
R6709 270
R6710 150
R6711 OPEN
Q6702 2SC3354/TS
C6711 0.0068
R6717 22K
C6710 0.0068
R6715 22K
1
2
3
4
5
A
B
C
D
E
F
G
H

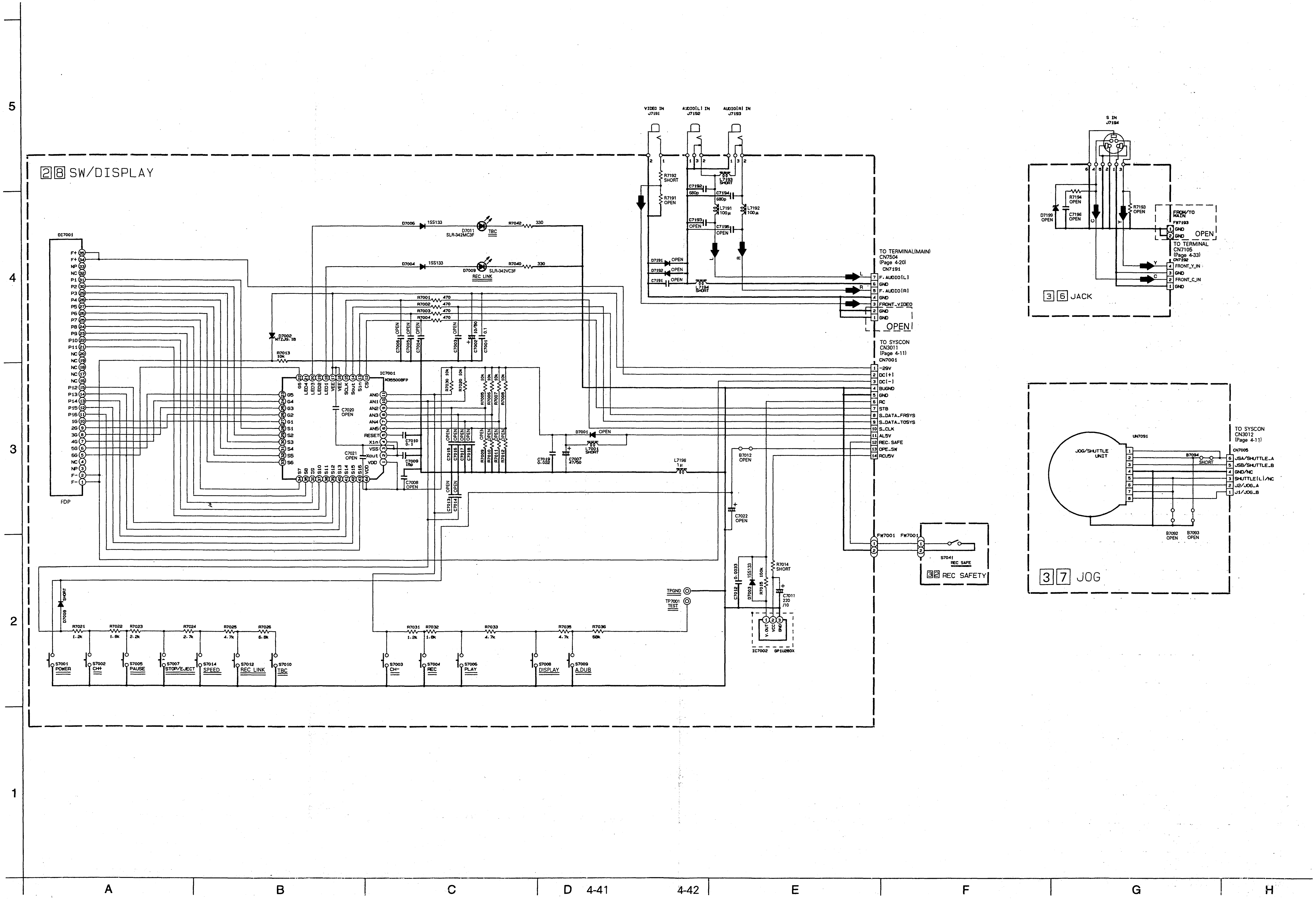
4.17 DEMODULATOR CIRCUIT BOARD


UL MARK
1 4 LPA10021
DEMOD PWB ASS'Y
LPB10021
DEMOD PWB
-001B
C6707
R6710
B6702
R6711
R6708
L6701
L6704
C6722
C6708
C6729
C6730
X6701
Q6702
L6702
Q6703
C6719
C6718
C6720
C6725
L6705
R6705
R6706
C6705
27
R6719
R6720
C6717
C6721
IC6701
C6726
C6723
C6701
C6728
C6727
52
C6704
C6724
C6714
C6716
C6702
26
1
R6716
R6714
R6718
D6704
LC6701
R6702
D6701
C6713
C6712
C6709
Q6704
R6715
R6717
L6703
R6701
C6715
Q6701
B6701
R6704
R6703
C6703
D6703
C6710
C6711
LC6702
CN6701
D6702
A
B
C
D
1
2
3
4
5
6
11

COMPONENT PARTS LOCATION GUIDE <DEMODULATOR>

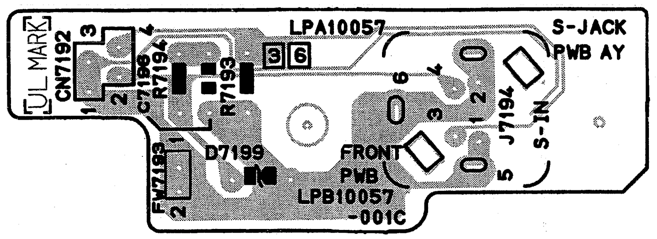
REF.NO.	LOCATION		
CAPACITOR			
C6701	B	C	4B
C6702	B	C	4B
C6703	A	D	5A
C6704	A	D	5C
C6705	B	C	1C
C6706	B	C	1D
C6707	B	C	1D
C6708	B	C	4D
C6709	A	D	1A
C6710	B	C	2A
C6711	B	C	3A
C6712	A	D	2B
C6713	A	D	1B
C6714	B	C	3C
C6715	A	D	4B
C6716	B	C	3B
C6717	B	C	3C
C6718	A	D	3D
C6719	A	D	2D
C6720	A	D	4C
C6721	B	C	3C
C6722	A	D	4D
C6723	B	C	4C
C6724	A	D	1B
C6725	A	D	4D
C6726	B	C	4C
C6727	B	C	4C
C6728	B	C	5C
C6729	B	C	5D
C6730	B	C	5D
CONNECTOR			
CN6701	A	D	3A
DIODE			
D6701	A	D	5B
D6702	A	D	5A
D6703	A	D	2A
D6704	A	D	3B
IC			
IC6701	A	D	5B
COIL			
L6701	A	D	3D
L6702	A	D	2D
L6703	A	D	4A
L6704	A	D	3D
L6705	A	D	4D
TRANSISTOR			
Q6701	A	D	5B
Q6702	A	D	2D
Q6703	B	C	2D
Q6704	B	C	2A
Q6705	B	C	2B
RESISTOR			
R6701	B	C	4B
R6702	B	C	4B
R6703	B	C	5A
R6704	B	C	5A
R6705	B	C	2C
R6706	B	C	1C
R6707	B	C	1D
R6708	B	C	2D
R6709	B	C	1D
R6710	B	C	1D
R6711	B	C	3D
R6712	B	C	2A
R6713	B	C	2A
R6714	B	C	2B
R6715	B	C	2A
R6716	B	C	2B
R6717	B	C	3A
R6718	B	C	3B
R6719	B	C	2C
R6720	B	C	2C
OTHER			
LC6701	A	D	3B
LC6702	A	D	3A

4.18 SWITCH/DISPLAY, REC SAFETY, JACK AND JOG SCHEMATIC DIAGRAMS

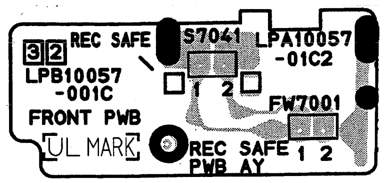

28 SW/DISPLAY
DI7001
FDP
F+ F+ NP NC NC P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 NC NC NC NC NC P12 P13 P14 P15 P16 1G 2G 3G 4G 5G 6G NC NP F- F-
IC7001
M35500BFP
G5 LED4 LED3 LED2 LED1 VEE VEE SCLK Sout Sin CS
G5 G4 G3 G2 G1 S1 S2 S3 S4 S5 S6
AN0 AN1 AN2 AN3 AN4 AN5 RESET Xin VSS Xout VDD
S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 VDD
C7020 OPEN
C7021 OPEN
C7010 0.1
C7009 15p
C7008 OPEN
D7006 1SS133
D7011 SLR-342MC3F
TBC
R7042 330
D7004 1SS133
D7009 SLR-342VC3F
REC LINK
R7040 330
D7002 MTZJ9.1B
R7013 10k
R7001 470
R7002 470
R7003 470
R7004 470
C7006 OPEN
C7005 OPEN
C7004 OPEN
C7003 OPEN
C7002 10/50
C7001 0.1
R7030 10k
R7020 10k
R7005 10k
R7006 10k
R7007 10k
R7008 10k
C7015 OPEN
C7016 OPEN
C7017 OPEN
C7018 OPEN
R7009 OPEN
R7010 OPEN
R7011 OPEN
R7012 OPEN
C7013 OPEN
C7014 OPEN
C7019 0.022
C7007 47/50
D7001 OPEN
L7001 SHORT
L7196 1µ
B7012 OPEN
C7022 OPEN
VIDEO IN J7191
AUDIO[L] IN J7192
AUDIO[R] IN J7193
R7192 SHORT
R7191 OPEN
L7193 SHORT
C7192 680p
C7194 680p
L7191 100µ
L7192 100µ
C7193 OPEN
C7195 OPEN
D7191 OPEN
D7192 OPEN
C7191 OPEN
L7194 SHORT
L
R
TO TERMINAL(MAIN)
CN7504
(Page 4-20)
CN7191
7 F. AUDIO[L]
6 GND
5 F. AUDIO[R]
4 GND
3 FRONT_VIDEO
2 GND
1 GND
OPEN
TO SYSCON
CN3011
(Page 4-11)
CN7001
1 -29V
2 DC[+]
3 DC[-]
4 BUGND
5 GND
6 RC
7 STB
8 S_DATA_FRSYS
9 S_DATA_TOSYS
10 S_CLK
11 AL5V
12 REC. SAFE
13 OPE_SW
14 RCU5V
TPGND
TP7001 TEST
C7012 0.0033
D7003 1SS133
R7015 100k
R7014 SHORT
C7011 220 /10
IC7002 GP1U280X
V.OUT VCC GND
D7008 SHORT
R7021 1.2k
R7022 1.8k
R7023 2.2k
R7024 2.7k
R7025 4.7k
R7026 6.8k
S7001 POWER
S7002 CH+
S7005 PAUSE
S7007 STOP/EJECT
S7014 SPEED
S7012 REC LINK
S7010 TBC
R7031 1.2k
R7032 1.8k
R7033 4.7k
R7035 4.7k
R7036 68k
S7003 CH-
S7004 REC
S7006 PLAY
S7008 DISPLAY
S7009 A.DUB
FW7001 FW7001
S7041 REC SAFE
32 REC SAFETY
S IN
J7194
R7194 OPEN
D7199 OPEN
C7196 OPEN
R7193 OPEN
C
Y
FROM/TO MAIN
FW7193
1 GND
2 GND
OPEN
TO TERMINAL
CN7105
(Page 4-33)
CN7192
4 FRONT_Y_IN
3 GND
2 FRONT_C_IN
1 GND
36 JACK
UN7091
JOG/SHUTTLE UNIT
B7094 SHORT
B7092 OPEN
B7093 OPEN
TO SYSCON
CN3012
(Page 4-11)
CN7005
6 JSA/SHUTTLE_A
5 JSB/SHUTTLE_B
4 GND/NC
3 SHUTTLE[L]/NC
2 J2/JOG_A
1 J1/JOG_B
37 JOG
5
4
3
2
1
A
B
C
D
E
F
G
H

4.19 SWITCH/DISPLAY, REC SAFETY, JACK AND JOG CIRCUIT BOARDS

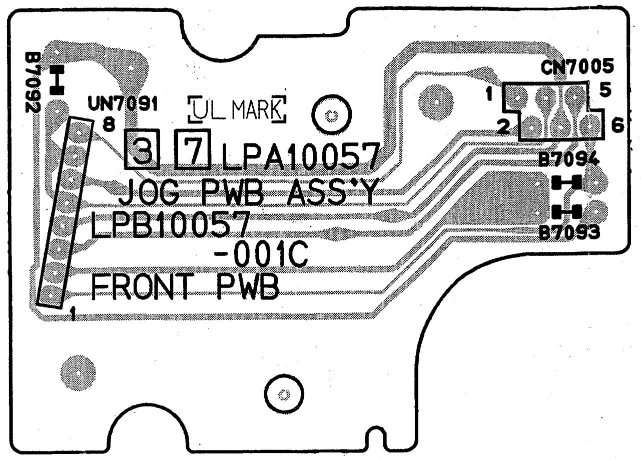
— JOG —


UL MARK
CN7192
C7196
R7194
R7193
LPA10057
3 6
S-JACK
PWB AY
J7194
S-IN
D7199
FW7193
FRONT
PWB
LPB10057
-001C

— REC SAFETY —


3 2
REC SAFE
S7041
LPA10057
-01C2
LPB10057
-001C
FRONT PWB
FW7001
UL MARK
REC SAFE
PWB AY

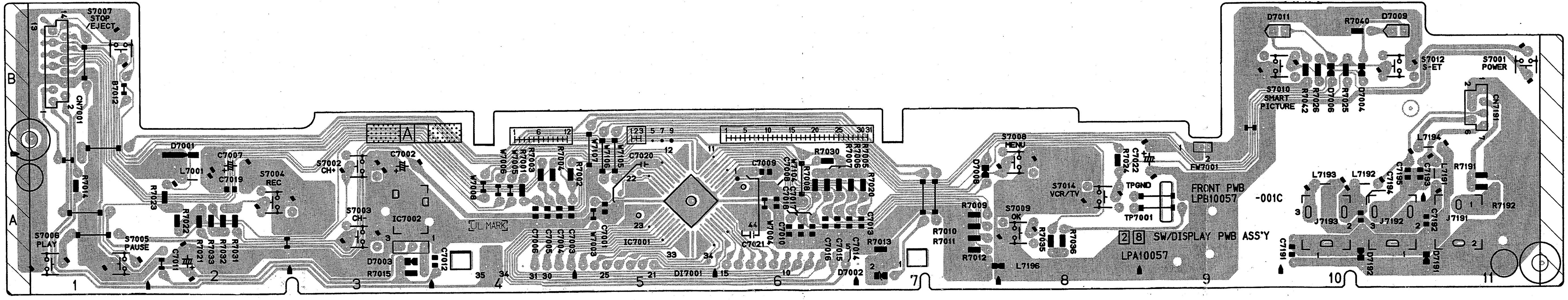
— JACK —


B7092
UN7091
UL MARK
CN7005
3 7
LPA10057
JOG PWB ASS'Y
LPB10057
-001C
FRONT PWB
B7094
B7093

COMPONENT PARTS LOCATION GUIDE <SW/DISPLAY>

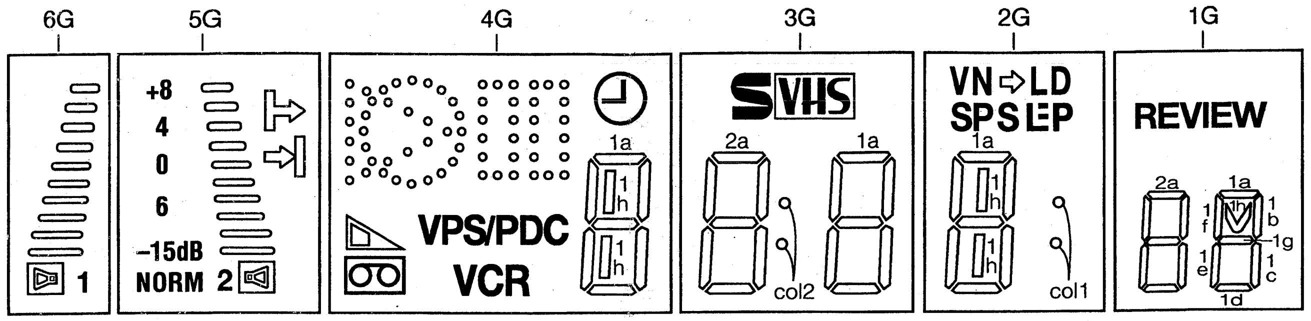
REF.NO.	LOCATION		
CAPACITOR			
C7001	A	D	5A
C7002	A	D	3A
C7003	A	D	4A
C7004	A	D	4A
C7005	A	D	4A
C7006	A	D	4A
C7007	A	D	2A
C7008	A	D	6A
C7009	A	D	6A
C7010	A	D	6A
C7011	A	D	2A
C7012	A	D	4A
C7013	A	D	7A
C7014	A	D	6A
C7015	A	D	6A
C7016	A	D	6A
C7017	A	D	6A
C7018	A	D	6A
C7019	A	D	2A
C7020	A	D	5A
C7021	A	D	6A
C7022	A	D	9B
C7191	A	D	10A
C7192	A	D	11A
C7193	A	D	10A
C7194	A	D	10A
C7195	A	D	10A
CONNECTOR			
CN7001	A	D	1B
CN7191	A	D	11B
DIODE			
D7001	A	D	2A
D7002	A	D	7A
D7003	A	D	3A
D7004	A	D	10B
D7006	A	D	10B
D7008	A	D	7A
D7009	A	D	10B
D7011	A	D	9B
D7191	A	D	11A
D7192	A	D	10A
IC			
IC7001	B	C	5A
IC7002	A	D	3A
JACK			
J7191	A	D	11A
J7192	A	D	10A
J7193	A	D	10A
COIL			
L7001	A	D	2A
L7191	A	D	11A
L7192	A	D	10A
L7193	A	D	10A
L7194	A	D	11A
L7196	A	D	8A
RESISTOR			
R7001	A	D	4A
R7002	A	D	4A
R7003	A	D	4A
R7004	A	D	4A
R7005	A	D	6A
R7006	A	D	6A
R7007	A	D	6A
R7008	A	D	6A
R7009	A	D	7A
R7010	A	D	7A
R7011	A	D	7A
R7012	A	D	7A
R7013	A	D	7A
R7014	A	D	1A
R7015	A	D	3A
R7020	A	D	7A
R7021	A	D	2A
R7022	A	D	2A
R7023	A	D	2A
R7024	A	D	8A
R7025	A	D	10B
R7026	A	D	10B
R7030	A	D	6A
R7031	A	D	2A
R7032	A	D	2A
R7033	A	D	2A
R7035	A	D	8A
R7036	A	D	8A
R7040	A	D	10B
R7042	A	D	10B
R7191	A	D	11A
R7192	A	D	11A
SWITCH			
S7001	A	D	11B
S7002	A	D	3A
S7003	A	D	3A
S7004	A	D	2A
S7005	A	D	1A
S7006	A	D	1A
S7007	A	D	1B
S7008	A	D	8A
S7009	A	D	8A
S7010	A	D	9B
S7012	A	D	10B
S7014	A	D	8A
OTHER			
DI7001	A	D	5A
FW7001	A	D	9B
TP7001	A	D	9A
TPGND	A	D	9A

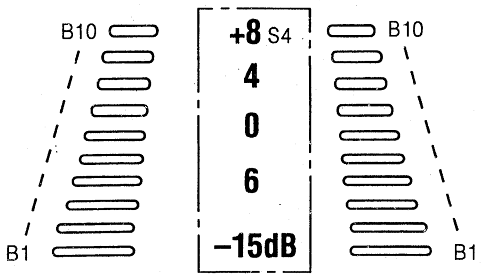
— SWITCH/DISPLAY —


B
A
S7007
STOP
EJECT
CN7001
B7012
D7001
C7007
L7001
C7019
S7004
REC
R7023
R7014
R7022
R7033
R7021
R7032
R7031
S7006
PLAY
S7005
PAUSE
C7011
S7002
CH+
C7002
S7003
CH-
IC7002
D7003
R7015
C7012
UL MARK
IC7001
DI7001
C7020
C7009
R7030
R7006
R7005
R7020
C7013
C7021
D7002
R7013
D7008
S7008
MENU
R7022
C7022
R7024
FW7001
TPGND
TP7001
S7014
VCR/TV
R7009
R7010
R7011
R7012
S7009
OK
R7035
R7036
L7196
FRONT PWB
LPB10057
-001C
2 8
SW/DISPLAY PWB ASS'Y
LPA10057
D7011
R7040
D7009
S7010
SMART
PICTURE
R7042
R7026
D7006
R7025
D7004
S7012
S-ET
S7001
POWER
CN7191
L7194
L7193
L7192
C7195
C7193
C7194
L7191
R7191
J7193
J7192
C7192
J7191
R7192
C7191
D7192
D7191
1
2
3
4
5
6
7
8
9
10
11

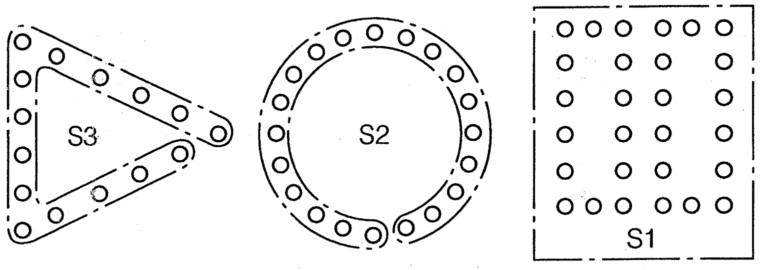
4.20 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT


6G
5G
4G
3G
2G
1G
+8
4
0
6
-15dB
NORM 2
1
VPS/PDC
VCR
1a
SVHS
2a
1a
col2
VN⇨LD
SPS L:P
1a
col1
REVIEW
2a
1a
1f
1h
1b
1g
1e
1c
1d


B10
+8 S4
4
0
6
-15dB
B10
B1
B1

(6G, 5G)



(4G)

ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	⇨	S2	1a	1a	1a
P 2	—	⇨|	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	◷	1c	1c	1c
P 6	▣	▣	◺	1e	1e	1e
P 7	B10	B10	OO	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	= (SEP)	2d
P16	B1	B1	1h	SVHS	LP(SEP)	REVIEW

SERVICE NOTE

4.21 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.5	2.5
3	0	0
4	2.5	2.5
5	0	0
6	2.8	2.8
7	2.5	2.5
8	2.5	2.5
9	2.5	2.5
10	2.5	2.5
11	2.5	2.5
12	5.0	5.0
13	1.9	1.4
14	1.9	1.4
15	2.6	3.0
16	1.5	0.7
17	1.8	1.8
18	2.3	2.3
19	3.1	3.1
20	2.7	2.7
21	2.3	2.3
22	1.9	1.9
23	3.0	3.0
24	2.2	2.2
25	1.4	1.4
26	2.1	2.1
27	0	0
28	4.9	4.9
29	1.6	1.9
30	3.0	3.0
31	2.8	2.8
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.3	3.3
40	5.0	5.0
41	5.0	5.0
42	1.9	1.9
43	5.0	5.0
44	2.5	2.5
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	0	0
52	1.3	2.4
53	3.0	2.8
54	1.9	1.9
55	2.1	2.1
56	2.8	2.3
57	0	0
58	3.0	3.0
59	3.3	3.3
60	2.1	2.1
61	4.9	4.9
62	4.9	4.9
63	4.9	4.9
64	0	0
65	0.9	2.6
66	4.9	4.9
67	4.9	4.9
68	0	0
69	2.8	2.8
70	2.7	2.7
71	2.1	2.1
72	2.3	2.1
73	-	-
74	2.7	1.1
75	-	-
76	2.3	2.3
77	4.5	4.5
78	2.7	2.7
79	4.3	2.1
80	0	0
81	-	-
82	1.2	1.2
83	2.3	2.3
84	0	1.3
85	0	0
86	2.3	2.3
87	2.2	2.2
88	2.3	2.3
89	2.3	2.3
90	4.9	4.9
91	0	0
92	0	0
93	0	0
94	0	0
95	0.5	0.5
96	5.0	5.0
97	0.3	0
98	5.0	5.0
99	0.5	2.5
100	2.5	2.5
IC2		
1	2.7	2.7
2	0	0
3	2.7	2.7
4	4.9	0
5	2.7	2.7
6	5.0	5.0
7	2.0	2.0
8	0	0
Q1		
E	3.4	3.4
C	0	0
B	2.7	2.7
Q6		
E	2.7	2.7
C	0	0
B	2.1	2.1
Q13		
E	1.1	1.1
C	3.9	3.9
B	1.7	1.7
Q14		
E	3.2	3.2
C	4.9	4.9
B	3.9	3.9
Q15		
E	3.8	3.8
C	0	0
B	3.2	3.2
Q16		
E	4.9	4.9
C	4.9	0
B	0.2	5.0
Q17		
E	0	0
C	0	0
B	3.0	3.0
Q18		
E	0	0
C	0	0
B	3.0	3.0
Q34		
E	2.4	2.2
C	2.3	2.3
B	0	0
Q35		
E	2.3	2.3
C	2.2	2.2
B	0	0
Q36		
E	0	0
C	0	0
B	0.7	0.7
Q37		
E	0	0
C	0	0
B	0.7	0.7
Q47		
E	4.9	4.9
C	2.3	2.3
B	2.8	2.8
Q48		
E	1.9	1.9
C	0	0
B	1.0	1.0
Q49		
E	2.1	2.1
C	4.9	4.9
B	2.8	2.8
Q55		
E	0	0
C	0	0
B	3.0	3.0
Q152		
E	5.0	2.7
C	0	0
B	4.5	2.1
Q153		
E	2.1	2.1
C	4.9	4.9
B	2.7	2.7
Q2001		
E	-19.0	0
C	0	0
B	-25.3	0.7
Q2002		
E	-19.0	0
C	0	0
B	-24.9	0.7
Q2003		
E	5.0	5.0
C	-25.1	4.9
B	5.0	0
Q2051		
E	0	0
C	8.1	0.2
B	0	0.2
Q2052		
E	11.5	11.5
C	11.3	1.1
B	10.7	11.5
Q2053		
E	0	0
C	0	11.4
B	4.5	0
Q2054		
E	11.3	1.1
C	11.2	0
B	10.5	1.1
Q2055		
E	0	0
C	0	1.1
B	5.0	0
Q2061		
E	0	0
C	7.9	0.2
B	0	0.2
Q2062		
E	11.2	0
C	11.1	0.2
B	10.4	0
Q2063		
E	0	0
C	0	0
B	5.0	0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.3	2.3
6	2.3	2.3
7	2.2	2.2
8	2.4	2.2
9	2.5	0
10	2.5	0
11	2.5	0
CN101		
1	0	0
2	-	-
3	4.8	4.8
4	-	-
5	4.9	4.9
6	0	0
7	0	0
8	0	0
9	0.5	0
10	0	0
11	0	0
12	0	0
13	5.0	5.0
14	4.9	4.9
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0	0
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN102		
1	1.4	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	1.9	1.9
9	1.3	2.3
10	5.0	5.0
11	2.4	2.4
12	2.9	2.9
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.9	4.9
18	4.9	4.9
19	4.9	4.9
20	5.0	5.0
21	2.3	2.3
22	0	0
23	2.3	2.3
24	0	0
25	0	0
26	2.4	2.4
27	1.8	1.8
28	0	0
29	0	0
30	0	0
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.2	2.5
7	2.5	2.5
CN2002		
1	0	0
2	0	0
IC201		

<ON SCREEN>

MODE PIN NO.	REC	PLAY
1	0	0
2	2.7	2.7
3	5.0	5.0
4	0	0
5	4.7	4.7
6	2.5	2.5
7	2.5	2.5
8	5.0	5.0
9	3.0	3.0
10	4.5	4.5
11	1.2	1.2
12	5.0	5.0
13	2.9	2.9
14	2.9	2.9
15	0	0
16	1.2	1.2
17	0	0
18	5.0	5.0
19	2.3	2.3
20	0	0
21	2.3	2.3
22	0.5	0.5
23	5.0	5.0
24	2.9	2.9
25	2.5	2.5
26	5.0	5.0
27	4.7	4.7
28	3.7	3.7
29	5.0	5.0
30	5.0	5.0
Q207		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q208		
E	2.3	2.3
C	5.0	5.0
B	3.0	3.0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	2.4	2.4
2	0	0
3	2.4	2.4
4	0	0
5	0	0
6	2.5	2.5
7	2.0	2.0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.0	2.0
13	0	0
14	0	0
15	0	0
16	2.5	2.5
17	0.6	0.3
18	2.5	2.5
19	2.5	2.5
20	2.5	0.1
21	2.5	0
22	2.6	0.6
23	0	0
24	2.5	0.7
25	4.9	4.9
26	2.6	0
27	0	-
28	4.2	0
29	4.4	1.8
30	4.4	1.7
31	1.0	3.0
32	2.5	2.5
33	2.5	2.5
34	0.7	0.3
35	2.5	2.5
36	0	0.2
37	1.7	1.7
38	0	0
39	0	0
40	5.0	5.0
41	0	0
42	5.0	5.0
43	4.9	4.9
44	3.2	3.2
45	0	0
46	4.8	4.8
47	2.5	2.5
48	2.5	2.5
49	3.4	2.8
50	1.3	2.9
51	0	0
52	0	0
53	4.4	4.4
54	0	0
55	0	0
56	0	0
57	4.4	4.4
58	10.0	10.0
59	4.5	4.5
60	0	0.8
61	2.5	2.5
62	2.4	2.4
63	4.4	4.4
64	4.5	4.5
Q2151		
E	4.9	4.9
C	5.0	5.0
B	2.1	2.1
Q2152		
E	5.0	5.0
C	4.9	4.9
B	0	0.2
Q2201		
E	0	0
C	0	0
B	0	0
Q2202		
E	0	0
C	0	0
B	0	0
Q2203		
E	5.2	5.2
C	0	0
B	5.1	5.1
Q2204		
E	0	0
C	5.1	5.1
B	0	0.2
Q2253		
E	0	0
C	0	0
B	4.6	4.6
Q2255		
E	0	0
C	0	0
B	4.2	4.2
Q2256		
E	0	0
C	4.2	4.2
B	0	0
Q2258		
E	4.5	0
C	4.4	1.7
B	0.2	5.0

<SYSTEM CONTROL>

MODE PIN NO.	REC	PLAY
IC3001		
1	2.8	2.5
2	0	0
3	1.9	2.5
4	2.5	2.5
5	2.5	2.5
6	2.6	2.6
7	2.5	2.5
8	2.5	2.5
9	5.1	5.1
10	5.1	5.1
11	0	0
12	0	0.2
13	0	1.1
14	4.6	4.6
15	5.1	5.1
16	1.3	2.9
17	0	0.7
18	0	0
19	3.4	2.8
20	0.2	0.2
21	4.1	4.1
22	4.2	0
23	0	0
24	5.0	5.0
25	0	0
26	5.1	5.1
27	5.1	5.1
28	5.1	5.1
29	5.1	5.1
30	0	0
31	5.1	5.1
32	0	0
33	0	0
34	0	5.1
35	0	0
36	0	0
37	5.0	5.0
38	1.8	1.8
39	4.5	4.5
40	0	0
41	5.1	5.1
42	4.6	4.6
43	0	0
44	0	0
45	5.1	5.1
46	5.1	0
47	0	0
48	5.1	0
49	4.9	4.9
50	4.9	4.9
51	5.1	5.1
52	1.0	1.0
53	4.5	4.5
54	-	-
55	-	-
56	0	0
57	0	0
58	5.0	5.0
59	3.0	3.0
60	0	0
61	0	0
62	0	0
63	0	0
64	-	-
65	-	-
66	5.1	5.1
67	-	-
68	0	0
69	-	-
70	5.1	5.1
71	5.1	5.1
72	5.0	5.0
73	5.1	5.1
74	0	0
75	4.7	4.7
76	4.7	4.7
77	3.1	3.1
78	5.1	0
79	0	5.1
80	0	0
81	0	0
82	5.1	5.1
83	-	-
84	0	0
85	0	0
86	4.7	4.7
87	5.1	5.1
88	4.8	0
89	0	0
90	0	0
91	3.0	3.0
92	5.0	5.0
93	5.1	5.1
94	5.1	5.1
95	5.1	5.1
96	0	0
97	5.1	5.1
98	0.2	0.2
99	0	-
100	-	-
101	2.5	2.5
102	1.2	1.2
103	0	0
104	0	0
105	5.1	5.1
106	5.0	5.0
107	0	0
108	1.6	1.6
109	5.1	5.1
110	0	0
111	0	0
112	2.5	2.5
IC3002		
1	5.1	5.1
2	5.0	5.0
3	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.7	4.7
6	4.7	4.7
7	0	0
8	5.1	5.1
IC3004		
1	0	0
2	12.2	12.2
3	-	0
4	0	0
5	0	0
6	12.2	12.2
7	0	0.3
8	12.2	12.2
9	0	0
Q3001		
E	0	0
C	12.2	12.2
B	0	0
Q3002		
E	0	0
C	4.8	4.7
Q3003		
E	0	0
C	5.0	5.0
Q3004		
E	0	0
C	0	0
B	0.7	0.7
Q3005		
E	5.1	5.1
C	5.8	5.8
B	5.7	5.7
Q3008		
E	0	0
C	4.9	4.9
B	0	0
Q4001		
E	0	0
C	0	0
B	5.0	5.0
CN3001		
1	11.5	11.5
2	0	0
3	1.3	1.3
4	0	0
5	1.6	1.6
CN3002		
1	0	0.4
2	0	0.4
CN3003		
1	0	0
2	2.5	2.5
3	2.5	2.5
4	5.0	5.0
5	0	0
6	5.1	5.1
7	0	0
8	11.5	11.5
CN3004		
1	5.1	5.1
2	5.1	5.1
3	0	0
4	0	0
CN3011		
1	5.1	5.1
2	0	0
3	5.1	5.1
4	5.1	5.1
5	4.5	4.5
6	5.1	5.1
7	1.1	1.1
8	4.3	4.5
9	5.1	5.1
10	0	0
11	0	0
12	-19.5	-19.5
13	-15.7	-15.7
14	-28.4	-28.4
CN3012		
1	0.5	0.5
2	0.5	0.5
3	0	0
4	0	0
5	0	0
6	0	0

<SW. REG>

MODE PIN NO.	REC	PLAY
IC5301		
1	5.8	5.8
2	5.0	5.0
3	4.9	4.9
4	0	0
5	12.2	12.2
6	11.5	11.5
7	12.2	12.2
8	1.2	1.2
9	1.2	1.2
10	10.8	10.8
Q5101		
S	0	0
D	160.7	157.0
G	-	-
Q5102		
E	0	0
C	-	-
B	-	-
Q5301		
E	21.0	21.0
C	11.5	11.5
B	21.0	21.0
Q5302		
E	0	0
C	20.9	21.1
B	0	0
Q5303		
E	5.2	5.2
C	5.8	5.8
B	5.8	5.8
Q5304		
E	11.5	11.5
C	12.3	12.3
B	12.2	12.2
Q5305		
E	12.2	12.2
C	12.2	12.2
B	0.6	0.6
Q5306		
E	12.2	12.2
C	11.5	11.5
B	10.9	10.9
Q5310		
E	0	0
C	0	0
B	4.6	4.6
Q5311		
E	32.1	32.1
C	32.1	32.1
B	31.5	31.5
Q5312		
E	-15.4	-15.4
C	-15.6	-15.6
B	-16.1	-16.1

<TUNER>

MODE PIN NO.	REC	PLAY
IC6080		
1	1.2	1.2
2	1.7	1.7
3	2.9	2.9
4	0	0
5	4.1	4.1
6	4.1	4.1
7	4.1	4.1
8	11.5	11.5
Q6030		
E	0.7	0.7
C	0	0
B	0	0
Q6031		
E	0	0
C	0	0
B	5.0	5.0
Q6032		
E	0	0
C	0	0
B	4.3	4.3
CN6701		
1	-	-
2	4.7	4.7
3	4.7	4.7
4	0	0
5	4.9	4.9
6	11.5	11.5
7	0	0
8	0	0
9	0	0
10	2.4	2.4
11	0	0
12	4.4	4.4

<TERMINAL(MAIN)>

MODE PIN NO.	REC	PLAY
CN7501		
1	0.2	5.0
2	0	0
3	0	0
4	2.3	2.3
5	0	0
6	1.2	1.2
7	11.5	11.5
8	0.7	0.7
9	11.5	11.5
CN7502		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	4.8	4.8
8	4.7	4.7
9	5.1	5.1
10	5.1	5.1
CN7503		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
CN7504		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0

<3D SVHS (VIDEO)>

MODE PIN NO.	REC	PLAY
IC1001		
1	3.0	3.0
2	0	3.9
3	2.2	2.2
4	1.8	1.8
5	2.9	2.9
6	2.8	2.8
7	2.3	2.3
8	3.0	3.0
9	2.3	2.3
10	2.8	2.8
11	2.8	2.8
12	2.2	2.2
13	4.9	4.9
14	4.9	4.9
15	2.5	2.5
16	3.0	2.8
17	0	0
18	2.9	2.1
19	0.5	1.1
20	0	0.4
21	2.3	2.3
22	2.8	2.8
23	2.3	2.3
24	0	0
25	3.4	3.4
26	2.1	2.1
27	2.8	2.8
28	2.8	2.8
29	2.8	2.8
30	0	0
31	2.8	2.8
32	0	0
33	2.8	2.8
34	4.9	4.9
35	2.8	2.8
36	1.9	1.9
37	3.1	3.1
38	2.9	2.9
39	2.4	2.4
40	2.7	2.7
41	2.9	2.9
42	2.8	2.8
43	3.1	3.1
44	2.2	2.2
45	0	0
46	2.8	2.8
47	1.9	1.1
48	2.8	2.8
49	4.9	4.9
50	2.8	2.8
51	4.9	4.9
52	2.8	2.8
53	1.9	1.9
54	2.6	3.6
55	0	0
56	2.3	2.3
IC1002		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
IC1006		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	2.7	2.7
12	1.5	1.5
13	0.8	0.8
14	3.3	3.3
15	3.4	3.2
16	1.3	1.3
17	4.0	4.0
18	1.1	1.1
19	4.8	4.8
20	0.7	0.7
IC1007		
1	-	-
2	-	-
3	-	-
4	-	-
5	2.2	2.2
6	2.0	2.0
7	3.7	3.7
8	4.9	4.9
Q1004		
E	-	-
C	-	-
B	-	-
Q1005		
E	0	0
C	0	0
B	2.6	2.6
Q1006		
E	3.9	3.9
C	0	0
B	3.3	3.3
Q1007		
E	1.4	1.4
C	3.5	3.5
B	2.1	2.1
Q1012		
E	2.5	2.5
C	4.9	4.9
B	3.2	3.2
Q1014		
E	0	0
C	1.2	1.2
B	0.6	0.6
Q1015		
E	0.6	0.6
C	3.2	3.2
B	1.3	1.3
Q1016		
E	-	-
C	-	-
B	-	-
Q1021		
E	3.0	3.0
C	0	0
B	2.4	2.4
Q1022		
E	0	0
C	4.4	0
B	0.3	3.9
CN1001		
1	0	0
2	-	-
3	4.8	4.8
4	-	-
5	4.9	4.9
6	0	0
7	0	0
8	0	0
9	0.5	0
10	0	0
11	0	0
12	0	0
13	5.0	5.0
14	4.9	4.9
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0	0
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN1002		
1	1.4	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	1.9	1.9
9	1.3	2.3
10	5.0	5.0
11	2.4	2.4
12	2.9	2.9
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.9	4.9
18	4.9	4.9
19	4.9	4.9
20	5.0	5.0
21	2.3	2.3
22	0	0
23	2.3	2.3
24	0	0
25	0	0
26	2.4	2.4
27	1.8	1.8
28	0	0
29	0	0
30	0	0
CN1003		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.7
6	0	0
7	5.6	5.6

<3D SVHS (3D/TBC)>

MODE PIN NO.	REC	PLAY
IC1401		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	-	-
66	-	-
67	-	-
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75	-	-
76	-	-
77	-	-
78	-	-
79	-	-
80	-	-
81	-	-
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	-	-
90	-	-
91	-	-
92	-	-
93	-	-
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
Q1401		
E	-	-
C	-	-
B	-	-
Q1402		
E	-	-
C	-	-
B	-	-
Q1403		
E	-	-
C	-	-
B	-	-
Q1404		
E	-	-
C	-	-
B	-	-
Q1405		
E	-	-
C	-	-
B	-	-
Q1406		
E	-	-
C	-	-
B	-	-
Q1407		
E	-	-
C	-	-
B	-	-
Q1408		
E	-	-
C	-	-
B	-	-
Q1409		
E	-	-
C	-	-
B	-	-
Q1410		
E	-	-
C	-	-
B	-	-
Q1411		
E	-	-
C	-	-
B	-	-
Q1412		
E	-	-
C	-	-
B	-	-
Q1413		
E	-	-
C	-	-
B	-	-
Q1414		
E	-	-
C	-	-
B	-	-
Q1416		
E	-	-
C	-	-
B	-	-
Q1417		
E	-	-
C	-	-
B	-	-
Q1418		
E	-	-
C	-	-
B	-	-

<TERMINAL>

MODE PIN NO.	REC	PLAY
IC7101		
1	1.6	1.6
2	0	0
3	1.6	1.6
4	11.5	11.5
5	2.0	2.0
6	0	0
7	5.1	5.1
8	11.5	11.5
9	5.1	5.1
10	5.2	5.2
11	5.1	5.1
12	0	0
13	4.8	4.8
14	4.8	4.8
15	5.8	5.8
16	5.1	5.1
17	5.8	5.8
18	5.1	5.1
19	11.5	11.5
20	2.5	2.5
21	1.4	1.1
22	1.4	1.1
23	2.5	2.5
24	2.0	2.0
IC7102		
1	6.4	6.4
2	5.2	5.2
3	5.7	5.7
4	0	0
5	5.7	5.7
6	5.7	5.7
7	0	0
8	6.4	6.4
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	6.4	6.4
Q7102		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q7103		
E	2.8	2.8
C	0	0
B	2.1	2.1
Q7104		
E	3.0	3.0
C	0	0
B	2.3	2.3
Q7107		
E	-	-
C	-	-
B	-	-
Q7108		
E	-	-
C	-	-
B	-	-
Q7109		
E	-	-
C	-	-
B	-	-
Q7110		
E	-	-
C	-	-
B	-	-
Q7111		
E	0	0
C	6.2	6.2
B	0	0
Q7112		
E	0.6	0.6
C	11.5	11.5
B	0	0
CN7101		
1	0.2	5.0
2	0	0
3	0	0
4	2.3	2.3
5	0	0
6	1.2	1.2
7	11.5	11.5
8	0.7	0.7
9	11.5	11.5
CN7102		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	4.8	4.8
8	4.7	4.7
9	5.1	5.1
10	5.1	5.1
CN7103		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
CN7104		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.7
6	0	0
7	5.6	5.6
CN7105		
1	0	0
2	0	0
3	0	0
4	0	0

<DEMODULATOR>

MODE PIN NO.	REC	PLAY
IC6701		
1	1.6	1.6
2	2.5	2.5
3	0	0
4	0	0
5	4.9	4.9
6	4.9	4.9
7	4.7	4.7
8	4.8	4.8
9	2.2	2.2
10	2.3	2.3
11	0	4.5
12	1.8	0.7
13	1.6	0.7
14	1.6	0.7
15	1.7	0.7
16	4.5	4.5
17	0	0
18	1.8	0.6
19	0.5	0
20	4.6	4.6
21	0.5	0
22	0.5	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0.5	0
28	0.5	0
29	0	0
30	3.7	3.7
31	3.7	3.7
32	0.6	0
33	8.3	8.3
34	7.4	7.4
35	0	0
36	3.6	3.6
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	2.5	2.5
44	3.7	3.7
45	0	0
46	4.9	4.9
47	1.5	1.5
48	1.5	1.5
49	0.6	0
50	0	0
51	-	-
52	-	-
Q6701		
E	8.4	8.4
C	11.5	11.5
B	9.0	9.0
Q6702		
E	2.9	2.9
C	8.4	8.4
B	3.6	3.6
Q6704		
E	0	0
C	0	0
B	3.3	3.3
Q6705		
E	0	0
C	0	0
B	3.3	3.3
CN6701		
1	4.7	4.7
2	4.7	4.7
3	0	0
4	4.9	4.9
5	11.5	11.5
6	0	0
7	0	0
8	0	0
9	2.4	2.4
10	0	0
11	4.4	4.4

<SWITCH/DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	5.1	5.1
2	2.2	2.2
3	0	0
4	2.2	2.2
5	5.1	5.1
6	5.1	5.1
7	4.0	4.0
8	3.0	3.0
9	3.0	3.0
10	5.1	5.1
11	5.1	5.1
12	4.4	4.4
13	1.1	1.1
14	5.1	5.1
15	4.5	4.5
16	-28.4	-28.4
17	-28.4	-28.4
18	-28.3	-28.3
19	-28.3	-28.3
20	4.9	4.9
21	-24.0	-24.0
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	5.1	5.1
IC7002		
1	5.1	5.1
2	5.1	5.1
3	0	0
CN7001		
1	-28.4	-28.4
2	-15.7	-15.7
3	-19.5	-19.5
4	0	0
5	0	0
6	5.1	5.1
7	4.3	4.5
8	1.1	1.1
9	5.1	5.1
10	4.5	4.5
11	5.1	5.1
12	5.1	5.1
13	0	0
14	5.1	5.1
CN7191		
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
FW7001		
1	5.1	5.1
2	0	0

<JOG>

MODE PIN NO.	REC	PLAY
CN7005		
1	0	0
2	0	0
3	0	0
4	0	0
5	0.5	0.5
6	0.5	0.5

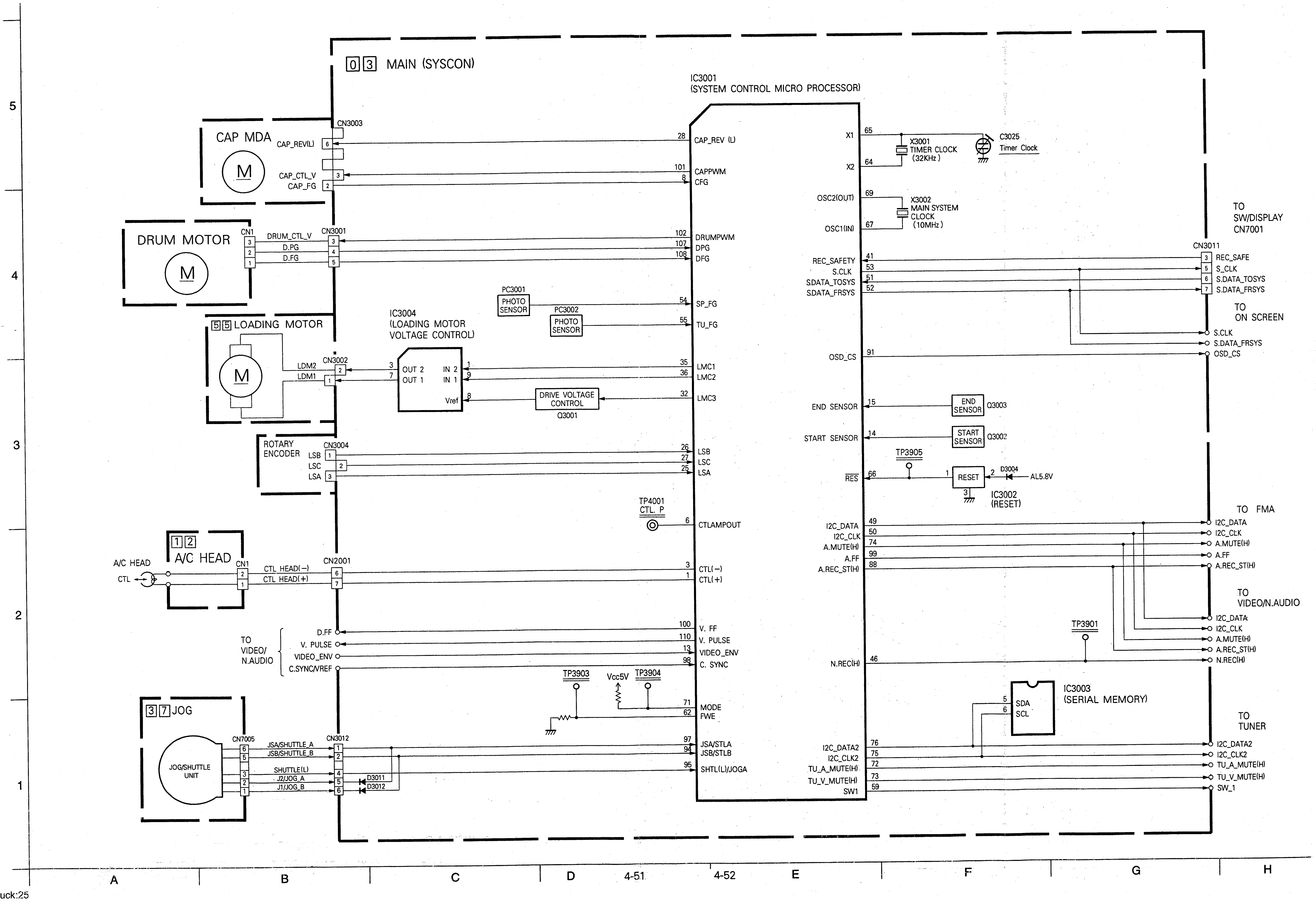
<JACK>

MODE PIN NO.	REC	PLAY
CN7192		
1	0	0
2	0	0
3	0	0
4	0	0

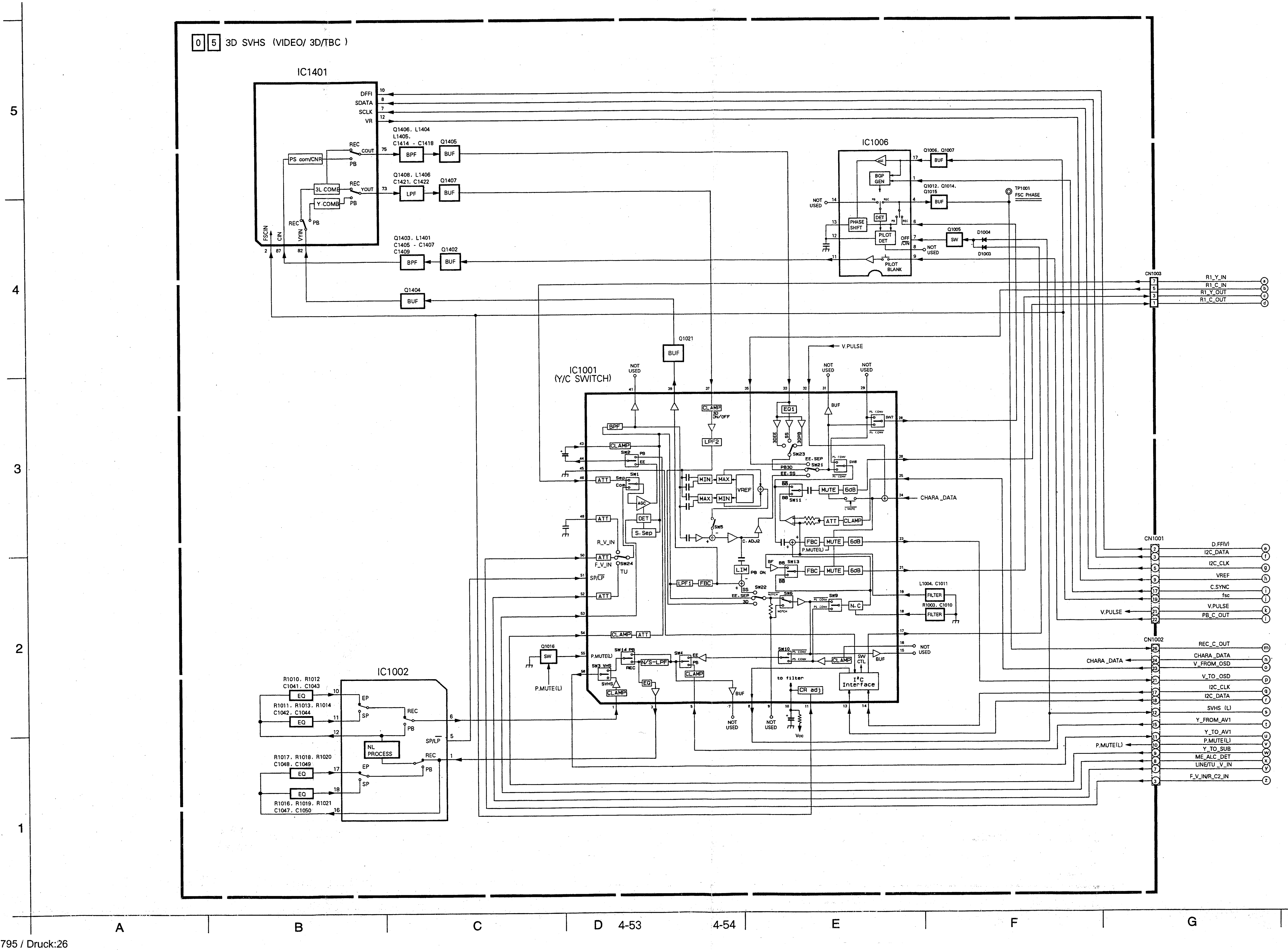
<REC SAFETY>

MODE PIN NO.	REC	PLAY
FW7001		
1	5.1	5.1
2	0	0

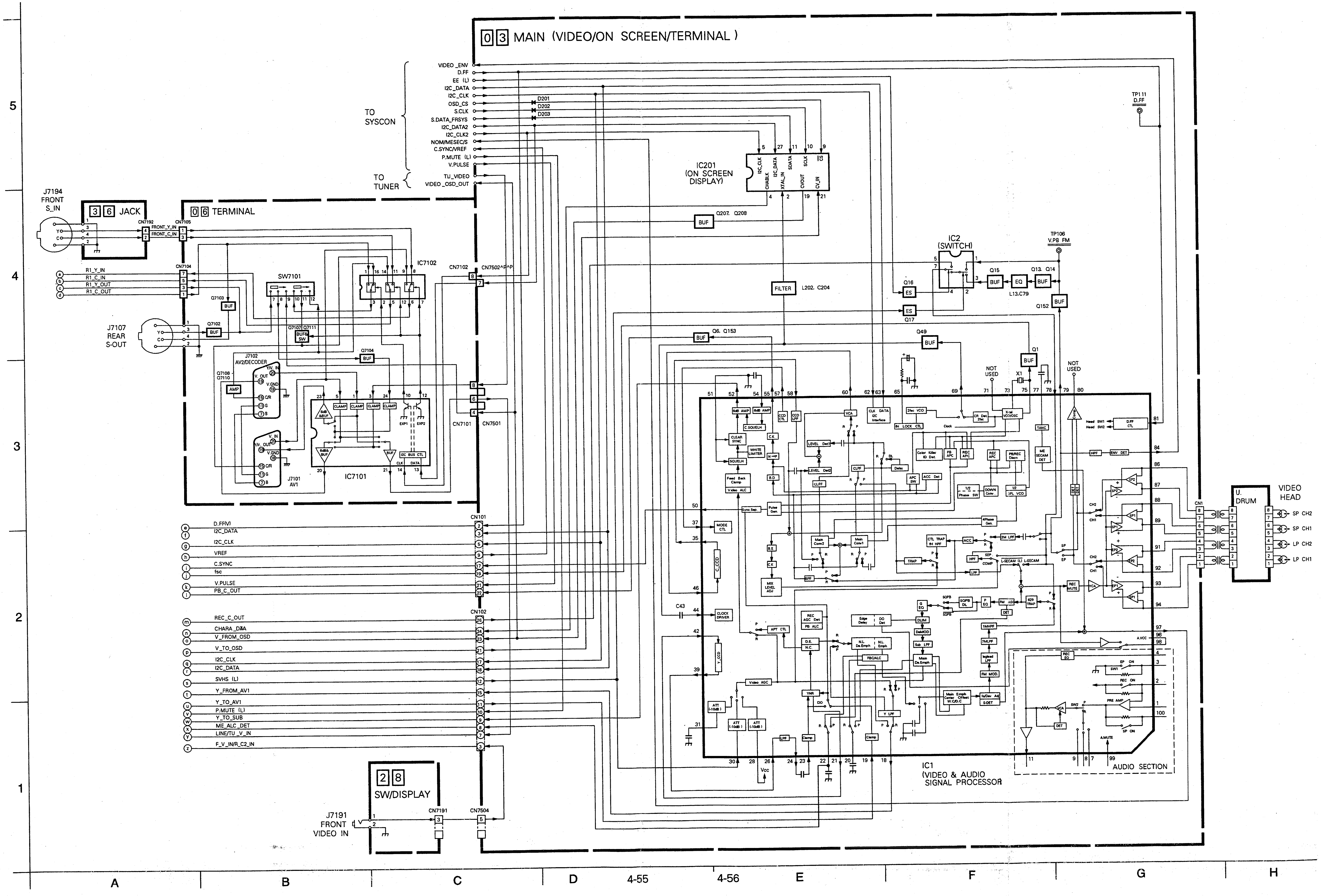
4.22 SYSTEM CONTROL BLOCK DIAGRAM


03 MAIN (SYSCON)
IC3001
(SYSTEM CONTROL MICRO PROCESSOR)
CAP MDA
M
CAP_REV(L)
CAP_CTL_V
CAP_FG
CN3003
6
3
2
28 CAP_REV (L)
101 CAPPWM
8 CFG
DRUM MOTOR
M
CN1
3
2
1
DRUM_CTL_V
D.PG
D.FG
CN3001
3
4
5
102 DRUMPWM
107 DPG
108 DFG
PC3001
PHOTO SENSOR
PC3002
PHOTO SENSOR
54 SP_FG
55 TU_FG
55 LOADING MOTOR
M
LDM2
LDM1
CN3002
2
1
IC3004
(LOADING MOTOR VOLTAGE CONTROL)
3 OUT 2
7 OUT 1
IN 2 1
IN 1 9
Vref 8
DRIVE VOLTAGE CONTROL
Q3001
35 LMC1
36 LMC2
32 LMC3
ROTARY ENCODER
LSB
LSC
LSA
CN3004
1
2
3
26 LSB
27 LSC
25 LSA
TP4001
CTL. P
6 CTLAMPOUT
12 A/C HEAD
A/C HEAD
CTL
CN1
2
1
CTL_HEAD(−)
CTL_HEAD(+)
CN2001
6
7
3 CTL(−)
1 CTL(+)
TO VIDEO/ N.AUDIO
D.FF
V. PULSE
VIDEO_ENV
C.SYNC/VREF
100 V. FF
110 V. PULSE
13 VIDEO_ENV
98 C. SYNC
TP3903
Vcc5V
TP3904
71 MODE
62 FWE
37 JOG
JOG/SHUTTLE UNIT
CN7005
6
5
3
2
1
JSA/SHUTTLE_A
JSB/SHUTTLE_B
SHUTTLE(L)
J2/JOG_A
J1/JOG_B
CN3012
1
2
4
5
6
D3011
D3012
97 JSA/STLA
94 JSB/STLB
95 SHTL(L)/JOGA
X1 65
X2 64
X3001
TIMER CLOCK
(32KHz)
C3025
Timer Clock
OSC2(OUT) 69
OSC1(IN) 67
X3002
MAIN SYSTEM CLOCK
(10MHz)
REC_SAFETY 41
S.CLK 53
SDATA_TOSYS 51
SDATA_FRSYS 52
TO SW/DISPLAY CN7001
CN3011
3 REC_SAFE
5 S_CLK
6 S.DATA_TOSYS
7 S.DATA_FRSYS
TO ON SCREEN
S.CLK
S.DATA_FRSYS
OSD_CS
OSD_CS 91
END SENSOR 15
END SENSOR
Q3003
START SENSOR 14
START SENSOR
Q3002
TP3905
RES 66
1 RESET 2
3
D3004
AL5.8V
IC3002
(RESET)
I2C_DATA 49
I2C_CLK 50
A.MUTE(H) 74
A.FF 99
A.REC_ST(H) 88
TO FMA
I2C_DATA
I2C_CLK
A.MUTE(H)
A.FF
A.REC_ST(H)
TO VIDEO/N.AUDIO
I2C_DATA
I2C_CLK
A.MUTE(H)
A.REC_ST(H)
N.REC(H)
TP3901
N.REC(H) 46
IC3003
(SERIAL MEMORY)
5 SDA
6 SCL
TO TUNER
I2C_DATA2 76
I2C_CLK2 75
TU_A_MUTE(H) 72
TU_V_MUTE(H) 73
SW1 59
I2C_DATA2
I2C_CLK2
TU_A_MUTE(H)
TU_V_MUTE(H)
SW_1
5
4
3
2
1
A
B
C
D
E
F
G
H

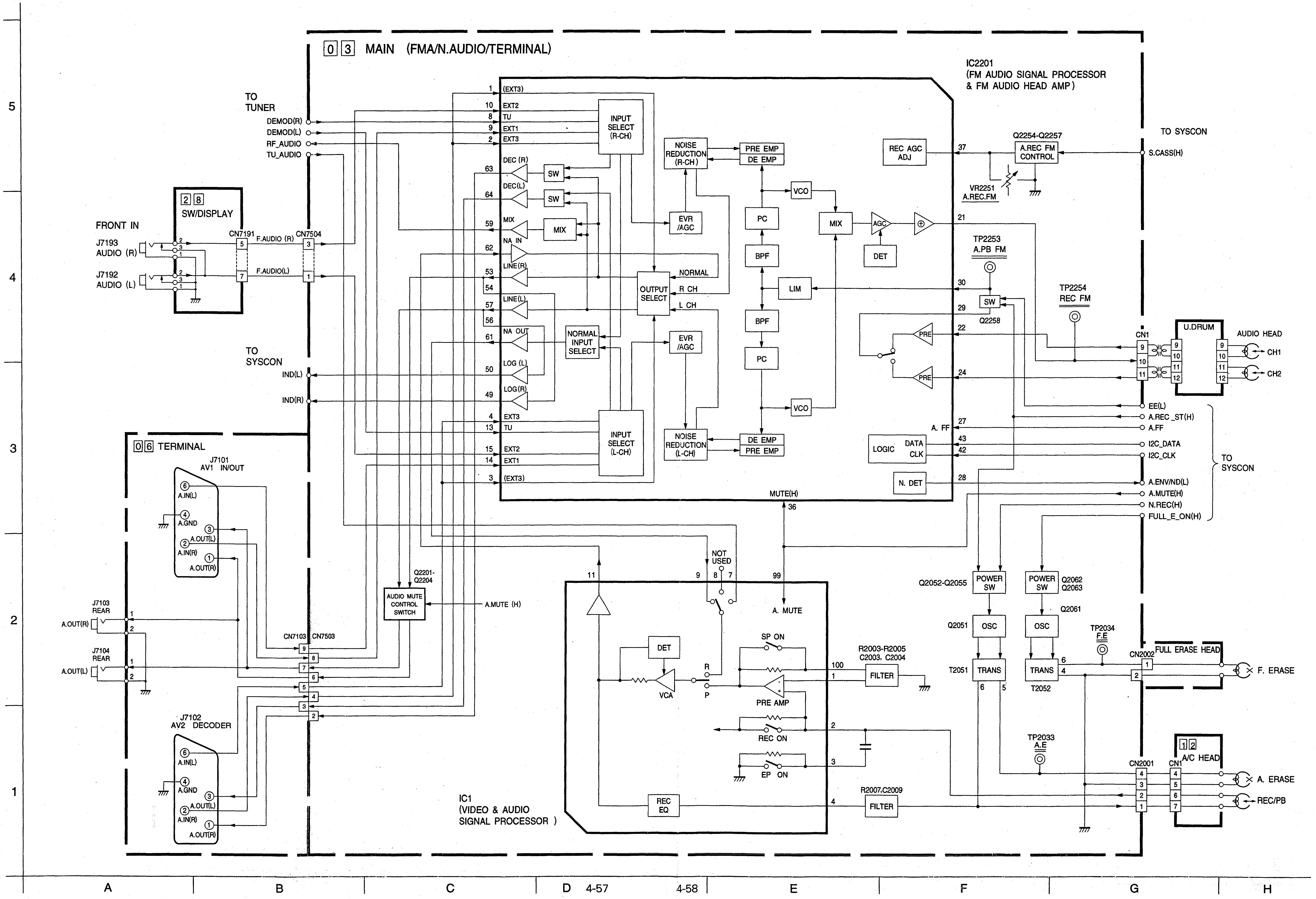
4.23 VIDEO BLOCK DIAGRAM



0 5 3D SVHS (VIDEO/ 3D/TBC)
IC1401
DFFI
SDATA
SCLK
VR
PS com/CNR
3L COMB
Y COMB
REC
PB
COUT
YOUT
FSCIN
CIN
VYIN
Q1406, L1404
L1405,
C1414 - C1418
Q1405
BPF
BUF
Q1408, L1406
C1421, C1422
Q1407
LPF
Q1403, L1401
C1405 - C1407
C1409
Q1402
Q1404
Q1021
IC1006
Q1006, Q1007
BGP GEN
Q1012, Q1014,
Q1015
NOT USED
PHASE SHIFT
DET
PILOT DET
PILOT BLANK
OFF /ON
Q1005
SW
D1004
D1003
TP1001
FSC PHASE
V.PULSE
IC1001
(Y/C SWITCH)
NOT USED
CLAMP
3D ON/OFF
LPF2
EQ1
3DEE
SS
3DPB
SW23
EE.SEP
SW21
PB3D
EE.SS
BPF
SW2
SW1
Sep
Com
ATT
AGC
DET
S.Sep
MIN
MAX
VREF
SW5
C.ADJ2
LIM
MUTE
6dB
SW11
SW8
FBC
P.MUTE(L)
SW13
SW22
SW6
SW9
N.C
LPF1
NOTCH
R_V_IN
F_V_IN
SW24
TU
SP/LP
Q1016
P.MUTE(L)
SW14 PB
SW3 VHS
SVHS
N/S-LPF
SW4
EE
EQ
SW10
PS CONV
SW CTL
I²C Interface
to filter
CR adj
Vcc
CHARA_DATA
L1004, C1011
FILTER
R1003, C1010
IC1002
R1010, R1012
C1041, C1043
R1011, R1013, R1014
C1042, C1044
EQ
EP
SP
NL PROCESS
SP/LP
R1017, R1018, R1020
C1048, C1049
R1016, R1019, R1021
C1047, C1050
CN1003
R1_Y_IN
R1_C_IN
R1_Y_OUT
R1_C_OUT
CN1001
D.FF(V)
I2C_DATA
I2C_CLK
VREF
C.SYNC
fsc
V.PULSE
PB_C_OUT
CN1002
REC_C_OUT
CHARA_DATA
V_FROM_OSD
V_TO_OSD
I2C_CLK
I2C_DATA
SVHS (L)
Y_FROM_AV1
Y_TO_AV1
P.MUTE(L)
Y_TO_SUB
ME_ALC_DET
LINE/TU_V_IN
F_V_IN/R_C2_IN
a b c d e f g h i j k l m n o p q r s t u v w x y z
5 4 3 2 1
A B C D E F G H

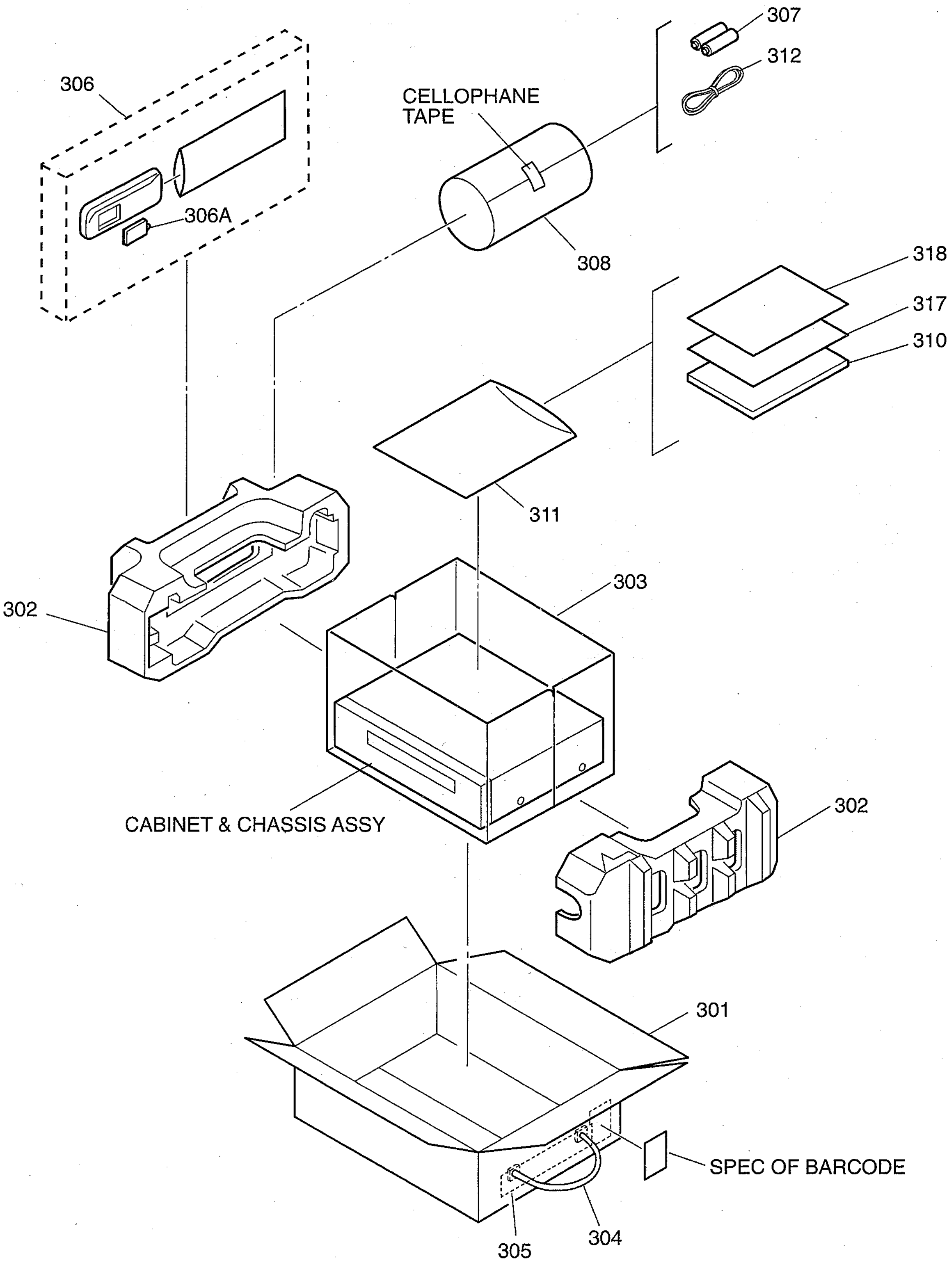

03 MAIN (VIDEO/ON SCREEN/TERMINAL)
06 TERMINAL
36 JACK
28 SW/DISPLAY
TO SYSCON
TO TUNER
VIDEO_ENV
D.FF
EE (L)
I2C_DATA
I2C_CLK
OSD_CS
S.CLK
S.DATA_FRSYS
I2C_DATA2
I2C_CLK2
NOM/MESEC/S
C.SYNC/VREF
P.MUTE (L)
V.PULSE
TU_VIDEO
VIDEO_OSD_OUT
D201
D202
D203
IC201 (ON SCREEN DISPLAY)
Q207, Q208
BUF
FILTER
L202, C204
IC2 (SWITCH)
TP106 V.PB FM
TP111 D.FF
Q15
Q13, Q14
Q16
Q17
ES
EQ
L13,C79
Q152
Q49
Q6, Q153
Q1
NOT USED
X1
J7194 FRONT S_IN
CN7192
FRONT_Y_IN
FRONT_C_IN
CN7105
CN7104
R1_Y_IN
R1_C_IN
R1_Y_OUT
R1_C_OUT
SW7101
IC7102
CN7102
CN7502
Q7103
J7107 REAR S-OUT
Q7102
Q7107, Q7111
BUF& SW
Q7104
J7102 AV2/DECODER
Q7108 Q7110
AMP
Y/V_IN
V_OUT
V.GND
C/R
G
B
V_IN
Y/V_OUT
J7101 AV1
IC7101
CLAMP
6dB &BUF
I2C BUS CTL
CLK
DATA
EXP1
EXP2
CN7101
CN7501
CN101
D.FF(V)
I2C_DATA
I2C_CLK
VREF
C.SYNC
fsc
V.PULSE
PB_C_OUT
CN102
REC_C_OUT
CHARA_DIM
V_FROM_OSD
V_TO_OSD
I2C_CLK
I2C_DATA
SVHS (L)
Y_FROM_AV1
Y_TO_AV1
P.MUTE (L)
Y_TO_SUB
ME_ALC_DET
LINE/TU_V_IN
F_V_IN/R_C2_IN
J7191 FRONT VIDEO IN
CN7191
CN7504
C43
C_CCD
Y_CCD
MODE CTL
CLOCK DRIVER
APT CTL
Video AGC
ATT (-10dB)
YNR
Y LPF
Clamp
LPF
IC1 (VIDEO & AUDIO SIGNAL PROCESSOR)
AUDIO SECTION
PRE AMP
SW1
SW2
REC ON
EP ON
SP ON
A.MUTE
A.VCC
REC EQ
DET
VCA
REC MUTE
HPF
ENV DET
D.FF CTL
Head SW1
Head SW2
SP
EP
CH1
CH2
CN1
U. DRUM
VIDEO HEAD
SP CH2
SP CH1
LP CH2
LP CH1
Vcc
A
B
C
D
E
F
G
H
1
2
3
4
5

4.24 AUDIO BLOCK DIAGRAM

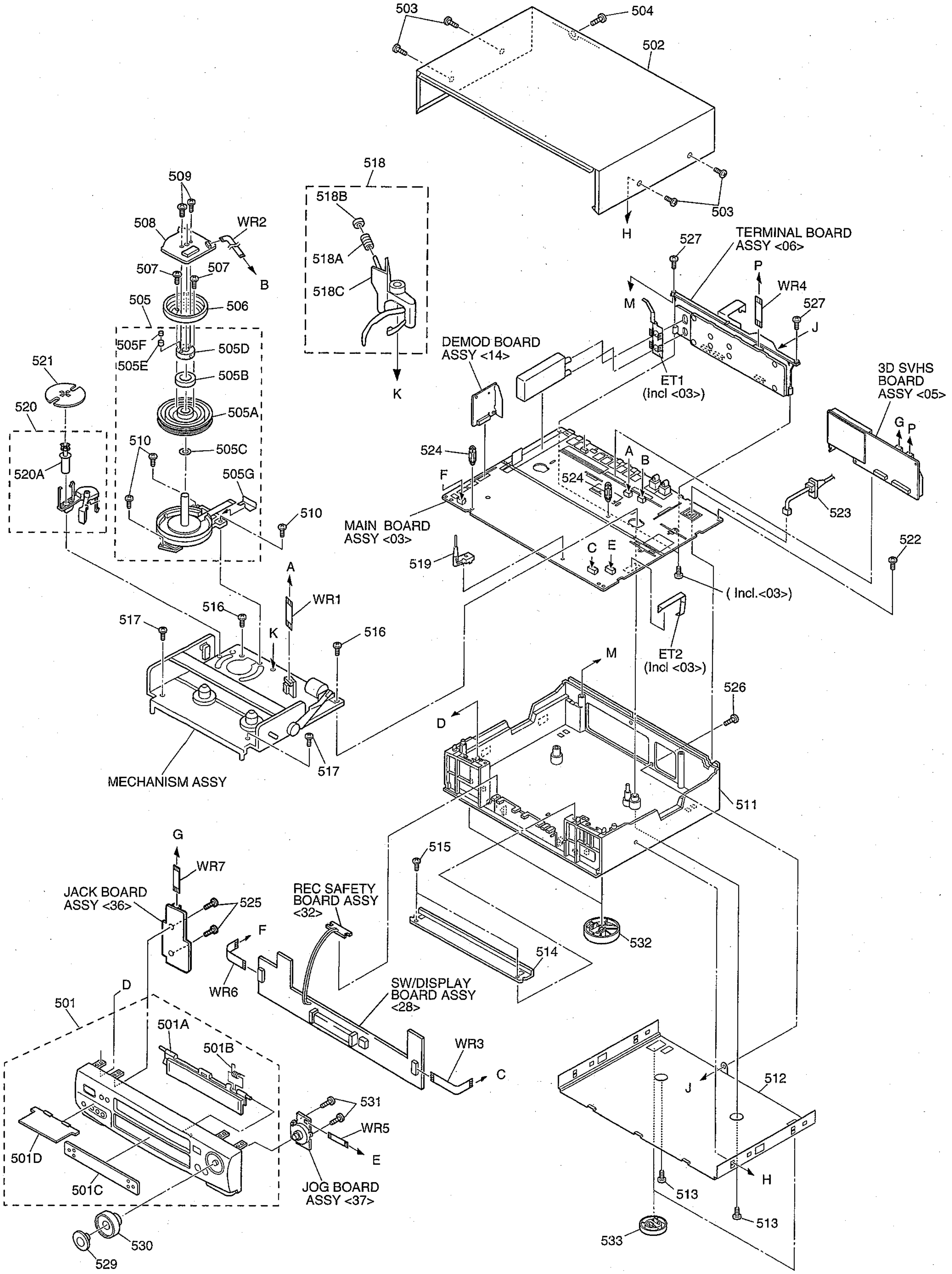

03 MAIN (FMA/N.AUDIO/TERMINAL)
IC2201
(FM AUDIO SIGNAL PROCESSOR
& FM AUDIO HEAD AMP)
TO TUNER
DEMOD(R)
DEMOD(L)
RF_AUDIO
TU_AUDIO
(EXT3)
EXT2
TU
EXT1
EXT3
INPUT SELECT (R-CH)
DEC (R)
DEC(L)
MIX
NA IN
LINE(R)
LINE(L)
NA OUT
LOG (L)
LOG(R)
SW
MIX
OUTPUT SELECT
NORMAL
R CH
L CH
NORMAL INPUT SELECT
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
EVR /AGC
PRE EMP
DE EMP
VCO
PC
BPF
LIM
AGC
DET
REC AGC ADJ
Q2254-Q2257
A.REC FM CONTROL
VR2251 A.REC.FM
TO SYSCON
S.CASS(H)
TP2253 A.PB FM
TP2254 REC FM
Q2258
PRE
INPUT SELECT (L-CH)
LOGIC
DATA
CLK
N. DET
A. FF
MUTE(H)
02 8 SW/DISPLAY
FRONT IN
J7193 AUDIO (R)
J7192 AUDIO (L)
CN7191
CN7504
F.AUDIO (R)
F.AUDIO(L)
TO SYSCON
IND(L)
IND(R)
06 TERMINAL
J7101 AV1 IN/OUT
A.IN(L)
A.GND
A.OUT(L)
A.IN(R)
A.OUT(R)
J7103 REAR A.OUT(R)
J7104 REAR A.OUT(L)
J7102 AV2 DECODER
CN7103
CN7503
Q2201-Q2204
AUDIO MUTE CONTROL SWITCH
A.MUTE (H)
NOT USED
DET
VCA
R
P
SP ON
PRE AMP
REC ON
EP ON
A. MUTE
REC EQ
IC1 (VIDEO & AUDIO SIGNAL PROCESSOR)
R2003-R2005 C2003, C2004
FILTER
R2007,C2009
CN1
U.DRUM
AUDIO HEAD
CH1
CH2
EE(L)
A.REC_ST(H)
A.FF
I2C_DATA
I2C_CLK
A.ENV/ND(L)
A.MUTE(H)
N.REC(H)
FULL_E_ON(H)
TO SYSCON
Q2052-Q2055
POWER SW
Q2062 Q2063
Q2061
Q2051
OSC
T2051
TRANS
T2052
TP2034 F.E
CN2002
FULL ERASE HEAD
F. ERASE
TP2033 A.E
CN2001
12 A/C HEAD
A. ERASE
REC/PB
1
2
3
4
5
A
B
C
D
E
F
G
H

SECTION 5
PARTS LIST

5.1 PACKING AND ACCESSORY ASSEMBLY


307
312
306
CELLOPHANE TAPE
306A
308
318
317
310
311
302
303
CABINET & CHASSIS ASSY
302
301
SPEC OF BARCODE
305
304

5.2 CABINET AND CHASSIS ASSEMBLY



503
504
502
503
H
518
518B
518A
518C
K
509
508
WR2
B
507
507
505
506
505F
505E
505D
505B
505A
505C
505G
510
510
521
520
520A
DEMOD BOARD
ASSY <14>
527
TERMINAL BOARD
ASSY <06>
P
WR4
527
M
J
ET1
(Incl <03>)
3D SVHS
BOARD
ASSY <05>
G
P
524
F
A
B
524
MAIN BOARD
ASSY <03>
523
522
C
E
519
(Incl.<03>)
A
WR1
516
517
K
516
ET2
(Incl <03>)
M
526
D
MECHANISM ASSY
517
511
G
WR7
JACK BOARD
ASSY <36>
525
515
REC SAFETY
BOARD ASSY
<32>
F
532
514
WR6
SW/DISPLAY
BOARD ASSY
<28>
D
501
501A
501B
WR3
C
512
J
531
WR5
E
501D
501C
JOG BOARD
ASSY <37>
H
513
513
533
530
529

1. ACCESSORIES

306	996500000870	REMOTE CONTROLLER
310	996500000871	INST BOOK(GE.FR)
	996500000872	INST BOOK(DU.IT)
	996500000873	INST BOOK(SP.PT)
	996500000874	INST BOOK(DA.FI)
	996500000875	INST BOOK(SW.NO)

2. CABINET AND CHASSIS

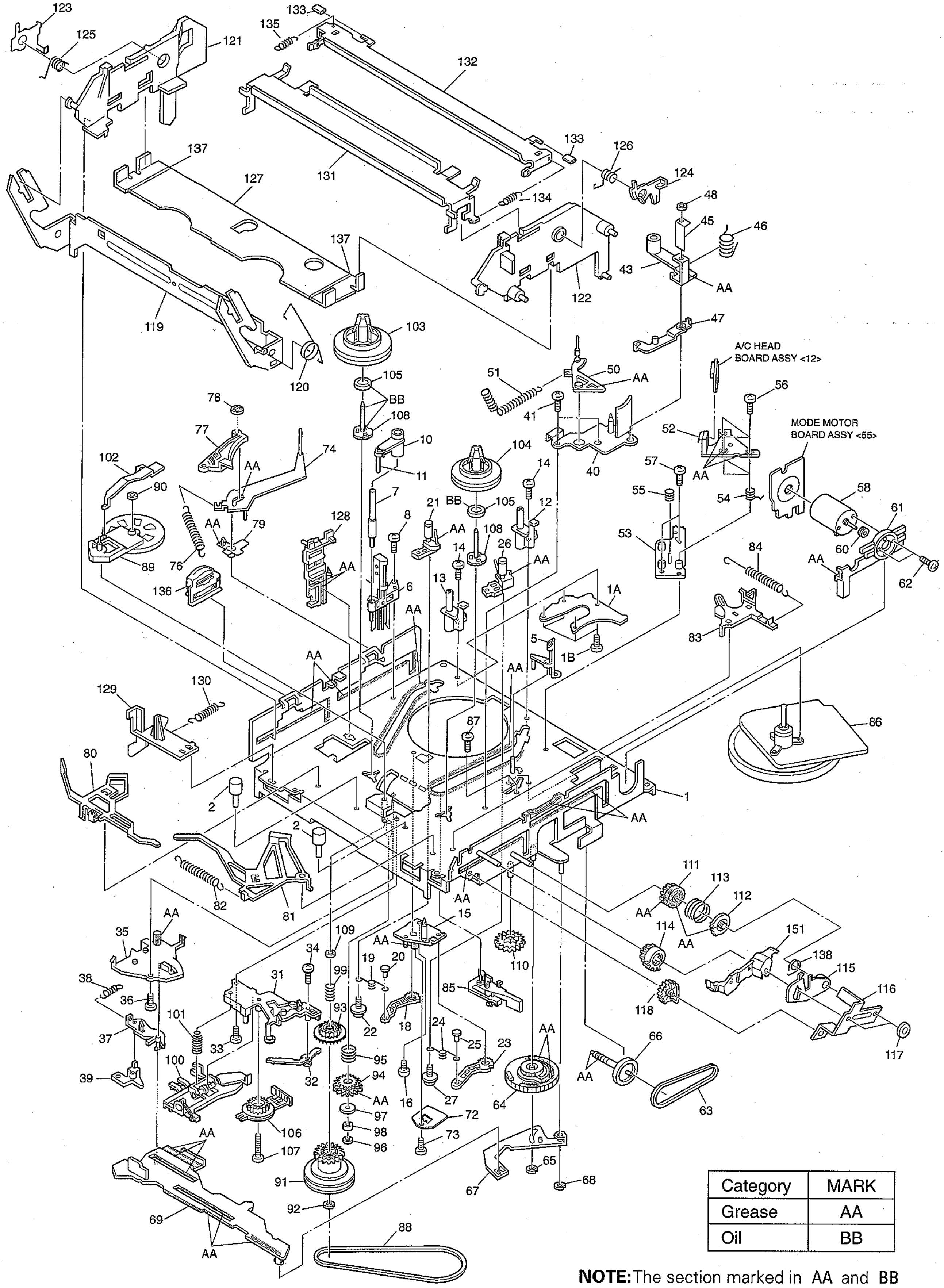
501	996500000876	!	FRONT PANEL ASSY
501A	996500000877		CASSETTE DOOR
501B	482249242781		TORSION SPRING
501D	996500000878		DOOR
505	996500000879		DRUM SUB ASSY
505A	996500000880		UPPER DRUM ASSY
505B	482246210924		CAP
505C	482253212804		WASHER
505D	482253212803		COLLAR ASSY
505E	482226511367		CONTACT
505F	482249211671		COMPRESSION SPRING
505G	482246612015		FPC PLATE
506	482236210293		ROTOR ASSY
508	482236210294		STATOR ASSY
518	996500000881		CLEANER ASSY
519	482241011804		KNOB ASSY
520	996500000882		ROLLER ARM ASSY
520A	482252890873		ROLLER ASSY
529	996500000883		KNOB(JOG)
530	996500000884		KNOB(SHUTTLE)

WIRE

WR1	996500000471	FFC WIRE,A/C HEAD CN
WR2	482232310443	FFC WIRE,DRUM CN3001
WR3	996500000483	FFC WIRE,DISPLSY CN3
WR4	996500000885	FFC WIRE,TERMINAL CN
WR5	996500000484	FFC WIRE,JOG CN3012
WR6	996500000503	FFC WIRE,JACK CN7504
WR7	996500000886	FFC WIRE,S JACK CN71

! ... Safety component, use only this type.

5.3 MECHANISM ASSEMBLY


123
125
121
133
135
132
137
127
131
133
126
124
48
134
45
46
137
43
AA
122
119
103
47
120
105
BB
A/C HEAD BOARD ASSY <12>
51
50
AA
56
78
108
41
77
74
10
104
52
MODE MOTOR BOARD ASSY <55>
102
AA
11
14
40
57
AA
90
7
BB
105
12
55
54
58
61
21
128
8
AA
108
53
AA
79
14
26
AA
84
60
76
89
AA
AA
6
13
1A
62
136
AA
5
83
1B
AA
AA
130
129
87
86
80
2
1
AA
2
82
81
AA
111
113
AA
112
35
109
15
AA
114
151
AA
34
19
20
138
38
31
99
110
115
36
85
93
116
101
18
118
22
37
33
24
25
23
AA
66
95
100
32
94
AA
39
AA
16
27
64
63
AA
97
72
117
106
98
AA
96
73
107
6
65
68
91
67
92
69
88
AA

Category	MARK
Grease	AA
Oil	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

3. MECHANISM ASSEMBLY

1 A	996500000419	PLATE(SUPPLY)
2	482253510317	ADJUST PIN,X2
5	482240211363	GIDE POLE GUARD
6	482224910558	FULL ERASE HEAD
7	482246311208	GUIDE POLE(SUPPLY)
10	482246410486	TENSION STUD BASE
11	482253510649	TENSION STUD
12	996500000838	UV CATCHER 2(SUPPLY)
13	996500000838	UV CATCHER 2(TAKE UP)
15	482253510568	LOADING ARM GEAR SHAFT)
18	482240211063	LOADING ARM GEAR(SUPPLY)
19	482249211636	TORSION ARM
20	482253510566	PIN
21	996500000839	POLE BASE ASSY(SUPPLY)
23	996500000840	LOADING ARM GEAR(TAKE UP)
24	482249211636	TORSION ARM
25	482253510566	PIN
26	996500000841	POLE BASE ASSY(TAKE UP)
31	996500000842	ROTARY ENCODER GUIDE
32	996500000843	BRAKE LEVER
35	482246611931	CONTROL PLATE GUIDE
37	482240211046	TAKE UP LEVER
38	482249211631	TENSION SPRING
39	482240211047	T.UP HEAD
40	482246311196	LID GUIDE
43	482240211133	PINCH ROLLER ARM ASSY
45	482252811348	PINCH ROLLER SHEET2
46	482249211634	TORSION SPRING
47	482240211057	P.LEVER ASSY
48	482253213042	SLIT WASHER
50	996500000844	GUIDE ARM ASSY
51	996500000845	TENSION SPRING
52	482224910557	AC HEAD
53	482246410456	HEAD BASE
54	482249211671	COMPRESSION SPRING,X3
55	482249211672	COMPRESSION SPRING
58	482236111095	LOADING MOTOR
60	482252881557	MOTOR PULLEY
61	482246311198	MOTOR GUIDE
63	482235810204	BELT,LOADING MOTOR
64	996500000847	CONTROL CAM
65	482253211784	SLIT WASHER
66	482252210697	WORM GEAR
67	482240211049	LINK LEVER ASSY
68	482253211784	SLIT WASHER
69	996500000848	CONTROL PLATE
72	482240211052	CONTROL BRACKET(1)
74	482240211043	TENSION ARM ASSY
76	482249211629	TENSION SPRING
77	996500000849	TENSION BRAKE ASSY
78	482253510317	ADJUST PIN
79	482253213037	T.ARM BEARING
80	996500000850	MAIN BRAKE ASSY (SUPPLY)
81	996500000851	MAIN BRAKE ASSY (TAKE UP)
82	482249211691	TENSION SPRING
83	996500000852	SUB BRAKE ASSY(TAKE UP)
84	482249211633	TENSION SPRING
85	482253510644	CAPSTAN BRAKE ASSY
86	996500000337	CAPSTAN MOTOR
88	482235810274	BELT,CAPSTAN MOTOR
89	996500000854	IDLER ARM ASSY
90	482253213041	SLIT WASHER
91	482252210764	CLUTCH UNIT
92	482253212326	SLIT WASHER
93	996500000856	CLUTCH GEAR 1
94	482252210766	DIRECT GEAR
95	482249211764	COMPRESSION SPRING
96	482253213041	SLIT WASHER,D.GEAR
97	482253213043	SPACER,D,GEAR
99	482249211765	COMPRESSION SPRING
100	996500000857	CHANGE LEVER ASSY
101	996500000858	COMPRESSION SPRING
102	482240211054	IDLER LEVER
103	482252811338	REEL DISK ASSY(SUPPLY)
104	482252811339	REEL DISK ASSY(TAKE UP)
105	482253213043	SPACER,X2
106	482227310349	ROTARY ENCODER
108	482253510565	REEL SHAFT,X2
109	482253213043	SPACER,C.GEAR1
110	482252210698	CASSETTE GEAR
111	482252210704	LIMIT GEAR(1)
112	996500000859	LIMIT GEAR(2)
113	482249211674	TORSION SPRING
114	482252210703	RELAY GEAR
115	482240211061	OPENER GUIDE
116	996500000887	C.H.BRACKET
117	482253212326	SLIT WASHER
118	996500000860	DRIVE GEAR
119	482240211064	DRIVE ARM
120	482249211673	TORSION SPRING
121	996500000861	SIDE HOLDER(L)
122	996500000862	SIDE HOLDER(R)
123	996500000863	LOCK LEVER(L)
124	996500000864	LOCK LEVER(R)
125	482249211664	TORSION SPRING(L)
126	482249211665	TORSION SPRING(R)
127	482225610469	CASSETTE HOLDER
128	996500000865	GUIDE RAIL
129	996500000866	REC SAFETY LEVER
130	482249211668	TENSION SPRING
131	482246011144	TOP GUIDE
132	482246011145	HOLD PLATE
133	482246211192	PAD,X2 HOLD PLATE
134	482249211785	TENSION SPRING
135	482249211786	TENSION SPRING
136	482252811349	ROLLER CAM ASSY
137	996500000356	PAD,X2 CASSETTE HOLD
138	482249211787	TORSION SPRING,OPENER
151	996500000888	DOOR OPENER

4. MAIN BOARD ASSEMBLY

INTEGRATED CIRCUITS

IC1	996500000345	JCP8017-MSA
IC2	482220916447	MM1113XF
IC201	996500000889	LC74775-9750
IC2201	482220917534	AN3651FBP
IC3001	996500000890	HD6432194A12F
IC3002	482220932732	S-80728AN-DR-X
IC3003	482220933113	M24C08-BN6
IC3004	482220930619	TA7291S
IC5301	996500000548	LA5634-N
IC6080	996500000891	BA15218F-XE

TRANSISTORS

Q1	482213061075	2SB1218A/QR/-X
Q6	482213061075	2SB1218A/QR/-X
Q13	482213060873	2SD1819A/QRS/-X
Q14	482213060873	2SD1819A/QRS/-X
Q15	482213061075	2SB1218A/QR/-X
Q16	482213010897	UN511E
Q17	482213061286	UN521E
Q18	482213061286	UN521E
Q34	996500000463	2SC4081/S/-X
Q35	996500000463	2SC4081/S/-X
Q36	996500000463	2SC4081/S/-X
Q37	996500000463	2SC4081/S/-X
Q47	996500000892	2SK433/D/-W
Q48	996500000892	2SK433/D/-W
Q49	482213060668	2SC3936/BC/-X
Q55	482213061286	UN521E
Q152	482213061075	2SB1218A/QR/-X
Q153	482213060873	2SD1819A/QRS/-X
Q207	482213061075	2SB1218A/QR/-X
Q208	482213060873	2SD1819A/QRS/-X
Q2001	482213060669	2SC4081/QRS/-X
Q2002	482213060669	2SC4081/QRS/-X
Q2003	482213061524	DTA144WU
Q2051	482213060669	2SC4081/QRS/-X
Q2052	482213060862	2SA1576A/QR/-X
Q2053	482213060997	DTC144WU
Q2054	482213060862	2SA1576A/QR/-X
Q2055	482213060997	DTC144WU
Q2061	482213060669	2SC4081/QRS/-X
Q2062	482213060862	2SA1576A/QR/-X
Q2063	482213060997	DTC144WU
Q2151	482213060669	2SC4081/QRS/-X
Q2152	482213061524	DTA144WU
Q2201	482213060669	2SC4081/QRS/-X
Q2202	482213060669	2SC4081/QRS/-X
Q2203	482213061524	DTA144WU
Q2204	482213060997	DTC144WU
Q2253	482213061906	DTC114EU
Q2255	482213060997	DTC144WU
Q2256	482213060997	DTC144WU
Q2258	482213061524	DTA144WU
Q3001	482213060873	2SD1819A/QRS/-X
Q3002	482213011169	PTZ-NV16
Q3003	482213011169	PTZ-NV16
Q3004	482213060873	2SD1819A/QRS/-X
Q3005	482213042431	2SC1740S/QRS/-T
Q3008	482213061286	UN521E
Q4001	482213061287	UN5211
Q5101	482213010437	2SK2632-CB14
Q5102	482213061892	2SD2144S/UV/-T
Q5301	482213063596	2SB1256
Q5302	482213063496	DTC114TU
Q5303	482213061892	2SD2144S/UVW/-T
Q5304	996500000893	2SD1450/ST/-T
Q5305	482213062555	UN5111
Q5306	482213063596	2SB1256
Q5310	482213061287	UN5211
Q5311	482213060862	2SA1576A/RS/-X
Q5312	996500000894	2SA1745/6-7/-X
Q6030	482213063469	2SB1218A/RS/-X
Q6031	482213061287	UN5211
Q6032	482213061287	UN5211

DIODES

D16	482213080523	DA204U
D17	482213080523	DA204U
D24	482213080523	DA204U
D201	482205120008	NRSA02J-152X
D202	482205120008	NRSA02J-0R0X
D203	482205120008	NRSA02J-0R0X
D2001	482213032778	1SS133
D2201	482213081748	11ES2
D3001	482213011345	LNB2301L01VI
D3002	482213032778	1SS133
D3003	482213083944	RD39ES/B3/-T2
D3004	482213011384	11E2-T5
D3005	482213011384	11E2-T5
D3008	482213083649	1SS355
D3011	482213032778	1SS133
D3012	482213032778	1SS133
D4001	482213083649	1SS355
D4002	482213083649	1SS355
D5001	482213083946	S1WB(A)60F4102
D5101	482213082686	AU01
D5102	482213082686	AU01
D5103	482213032778	1SS133
D5105	482213032778	1SS133
D5201	482213081377	AK04
D5202	482213080703	FML-12S
D5206	482213081607	FMB-24
D5209	482213011318	ERA18-02-T2
D5210	482213082768	AU01Z
D5211	482213082768	AU01Z
D5301	482213083751	MTZJ15A
D5302	482213080318	MTZJ6.8A
D5303	996500000549	MTZJ27C
D5304	482213032778	1SS133
D5305	482213011384	11E2-T5
D5307	482213032778	1SS133
D5308	482213032778	1SS133
D5309	482213032778	1SS133
D5311	482213011643	RD5.1ES/B3/-T2
D6002	482213083157	HZ30-2L-T2

RESISTORS

R1		MG RESISTOR 330Ω,1/
R2		MG RESISTOR 560Ω,1/
R3		MG RESISTOR 4.7kΩ,1
R4		MG RESISTOR 8.2kΩ,1
R5		MG RESISTOR 10kΩ,1/
R6		MG RESISTOR 680Ω,1/
R7		MG RESISTOR 4.7kΩ,1
R10		MG RESISTOR 1kΩ,1/1
R11		MG RESISTOR 0Ω,1/10
R13		MG RESISTOR 2.2kΩ,1
R15		MG RESISTOR 0Ω,1/10
R16		MG RESISTOR 0Ω,1/10
R24	996500000508	CMF RESISTOR 6.2kΩ, 1/10W
R25	996500000509	CMF RESISTOR 1.5kΩ, 1/10W
R46		MG RESISTOR 10kΩ,1/
R47		MG RESISTOR 5.6kΩ,1
R48		MG RESISTOR 220Ω,1/
R49		MG RESISTOR 220Ω,1/
R50		MG RESISTOR 1kΩ,1/1
R52		MG RESISTOR 0Ω,1/10W
R54		MG RESISTOR 0Ω,1/10W
R55		MG RESISTOR 1.2kΩ,1
R56		MG RESISTOR 0Ω,1/10W
R57		MG RESISTOR 1kΩ,1/10W
R60		MG RESISTOR 56kΩ,1/10W
R62		MG RESISTOR 0Ω,1/10W
R63		CAPACITOR 12pF,50V
R64		CAPACITOR 22pF,50V
R68		MG RESISTOR 470Ω,1/
R69		MG RESISTOR 470Ω,1/
R71		MG RESISTOR 4.7kΩ,1
R73		MG RESISTOR 68kΩ,1/
R94		MG RESISTOR 2.2kΩ,1
R95		MG RESISTOR 0Ω,1/10W
R96		MG RESISTOR 0Ω,1/10W
R120		MG RESISTOR 1kΩ,1/10W

! ... Safety component, use only this type

R121	MG RESISTOR 1kΩ,1/10W
R137	MG RESISTOR 1kΩ,1/1
R143	MG RESISTOR 0Ω,1/10
R158	MG RESISTOR 1kΩ,1/1
R168	MG RESISTOR 1kΩ,1/1
R169	MG RESISTOR 1kΩ,1/1
R170	MG RESISTOR 10kΩ,1/
R171	MG RESISTOR 2.2kΩ,1
R181	MG RESISTOR 0Ω,1/10
R195	MG RESISTOR 680kΩ,1
R197	MG RESISTOR 10MΩ,1/
R201	MG RESISTOR 0Ω,1/10
R202	MG RESISTOR 10kΩ,1/
R208	MG RESISTOR 0Ω,1/10
R209	MG RESISTOR 5.1kΩ,1
R210	MG RESISTOR 1.8kΩ,1
R211	MG RESISTOR 5.6kΩ,1
R212	MG RESISTOR 330Ω,1/
R213	MG RESISTOR 0Ω,1/10
R216	MG RESISTOR 10kΩ,1/
R218	MG RESISTOR 0Ω,1/10
R224	MG RESISTOR 100Ω,1/
R225	MG RESISTOR 470Ω,1/
R2001	MG RESISTOR 10kΩ,1/
R2002	MG RESISTOR 10kΩ,1/
R2003	MG RESISTOR 6.8kΩ,1
R2004	MG RESISTOR 220kΩ,1
R2005	MG RESISTOR 180Ω,1/
R2006	MG RESISTOR 27kΩ,1/
R2007	MG RESISTOR 18kΩ,1/
R2009	MG RESISTOR 0Ω,1/10
R2013	MG RESISTOR 3.3kΩ,1
R2014	MG RESISTOR 15kΩ,1/
R2018	MG RESISTOR 4.7kΩ,1
R2019	MG RESISTOR 4.7kΩ,1
R2020	MG RESISTOR 0Ω,1/10
R2053	MG RESISTOR 4.7kΩ,1
R2054	MG RESISTOR 15kΩ,1/
R2055	MG RESISTOR 3.3Ω,1/
R2056	MG RESISTOR 100Ω,1/
R2057	MG RESISTOR 47kΩ,1/
R2058	MG RESISTOR 18kΩ,1/
R2059	MG RESISTOR 47kΩ,1/
R2060	MG RESISTOR 18kΩ,1/
R2061	MG RESISTOR 27kΩ,1/
R2062	MG RESISTOR 3.3Ω,1/
R2063	RESISTOR 150Ω,1/4W
R2064	MG RESISTOR 47kΩ,1/
R2065	MG RESISTOR 18kΩ,1/
R2151	MG RESISTOR 100Ω,1/
R2152	MG RESISTOR 4.7kΩ,1
R2201	MG RESISTOR 47kΩ,1/
R2202	MG RESISTOR 47kΩ,1/
R2203	MG RESISTOR 6.8kΩ,1
R2204	MG RESISTOR 6.8kΩ,1
R2206	MG RESISTOR 27kΩ,1/
R2207	MG RESISTOR 47kΩ,1/
R2208	MG RESISTOR 47kΩ,1/
R2209	MG RESISTOR 27kΩ,1/
R2210	MG RESISTOR 47kΩ,1/
R2211	MG RESISTOR 47kΩ,1/
R2212	MG RESISTOR 100kΩ,1
R2213	MG RESISTOR 6.8kΩ,1
R2214	MG RESISTOR 6.8kΩ,1
R2215	MG RESISTOR 100kΩ,1
R2216	MG RESISTOR 6.8kΩ,1
R2217	MG RESISTOR 6.8kΩ,1
R2218	MG RESISTOR 56Ω,1/1
R2219	MG RESISTOR 680Ω,1/
R2220	MG RESISTOR 2.7kΩ,1
R2221	MG RESISTOR 2.7kΩ,1
R2222	MG RESISTOR 680Ω,1/
R2223	MG RESISTOR 680Ω,1/
R2224	MG RESISTOR 2.7kΩ,1
R2225	MG RESISTOR 100Ω,1/
R2226	MG RESISTOR 3.3kΩ,1
R2227	MG RESISTOR 1.2kΩ,1
R2228	MG RESISTOR 680Ω,1/
R2229	MG RESISTOR 680Ω,1/
R2230	MG RESISTOR 2.7kΩ,1
R2231	MG RESISTOR 2.7kΩ,1
R2236	MG RESISTOR 4.7kΩ,1/10W
R2237	MG RESISTOR 510Ω,1/10W
R2239	MG RESISTOR 4.7kΩ,1
R2240	MG RESISTOR 510Ω,1/
R2241	MG RESISTOR 10kΩ,1/
R2242	MG RESISTOR 10kΩ,1/
R2243	MG RESISTOR 1kΩ,1/1
R2244	MG RESISTOR 56Ω,1/1
R2251	MG RESISTOR 30kΩ,1/
R2252	MG RESISTOR 220Ω,1/
R2254	MG RESISTOR 4.7kΩ,1
R2255	MG RESISTOR 10kΩ,1/
R3011	MG RESISTOR 4.7kΩ,1
R3012	MG RESISTOR 4.7kΩ,1
R3013	MG RESISTOR 4.7kΩ,1
R3014	MG RESISTOR 4.7kΩ,1
R3015	MG RESISTOR 4.7kΩ,1
R3016	MG RESISTOR 4.7kΩ,1
R3017	MG RESISTOR 4.7kΩ,1
R3018	MG RESISTOR 6.8kΩ,1
R3019	MG RESISTOR 4.7kΩ,1
R3020	MG RESISTOR 4.7kΩ,1
R3021	MG RESISTOR 4.7kΩ,1
R3022	MG RESISTOR 4.7kΩ,1
R3025	MG RESISTOR 4.7kΩ,1
R3026	MG RESISTOR 4.7kΩ,1
R3027	MG RESISTOR 4.7kΩ,1
R3029	MG RESISTOR 4.7kΩ,1
R3030	MG RESISTOR 4.7kΩ,1
R3031	MG RESISTOR 1kΩ,1/1
R3033	MG RESISTOR 1kΩ,1/1
R3034	MG RESISTOR 1kΩ,1/1
R3035	MG RESISTOR 4.7kΩ,1
R3036	MG RESISTOR 4.7kΩ,1
R3037	MG RESISTOR 1kΩ,1/1
R3038	MG RESISTOR 1.5kΩ,1
R3039	MG RESISTOR 1kΩ,1/1
R3040	MG RESISTOR 4.7kΩ,1
R3041	MG RESISTOR 4.7kΩ,1
R3042	MG RESISTOR 4.7kΩ,1
R3044	MG RESISTOR 1kΩ,1/1
R3046	MG RESISTOR 1kΩ,1/1
R3047	MG RESISTOR 1kΩ,1/1
R3048	MG RESISTOR 1kΩ,1/1
R3049	MG RESISTOR 330Ω,1/
R3050	MG RESISTOR 330Ω,1/
R3051	MG RESISTOR 470Ω,1/
R3052	MG RESISTOR 470Ω,1/
R3053	MG RESISTOR 470Ω,1/
R3054	MG RESISTOR 4.7kΩ,1
R3055	MG RESISTOR 4.7kΩ,1
R3056	MG RESISTOR 4.7kΩ,1
R3057	MG RESISTOR 1kΩ,1/1
R3058	MG RESISTOR 1kΩ,1/1
R3059	MG RESISTOR 1kΩ,1/1
R3060	MG RESISTOR 470Ω,1/
R3061	MG RESISTOR 470Ω,1/
R3062	MG RESISTOR 10kΩ,1/
R3063	MG RESISTOR 4.7kΩ,1
R3066	MG RESISTOR 4.7kΩ,1
R3069	MG RESISTOR 100Ω,1/
R3071	MG RESISTOR 10kΩ,1/
R3072	MG RESISTOR 1kΩ,1/1
R3073	MG RESISTOR 1kΩ,1/1
R3074	MG RESISTOR 470Ω,1/
R3075	MG RESISTOR 470Ω,1/
R3076	MG RESISTOR 470Ω,1/
R3077	MG RESISTOR 1kΩ,1/1
R3078	MG RESISTOR 1kΩ,1/1
R3079	MG RESISTOR 1kΩ,1/1
R3080	MG RESISTOR 1kΩ,1/1
R3081	MG RESISTOR 1kΩ,1/1
R3083	MG RESISTOR 1kΩ,1/1
R3085	MG RESISTOR 1kΩ,1/1
R3086	MG RESISTOR 1kΩ,1/1
R3087	MG RESISTOR 1kΩ,1/1
R3088	MG RESISTOR 220Ω,1/
R3089	MG RESISTOR 1kΩ,1/1
R3090	MG RESISTOR 1kΩ,1/1
R3091	MG RESISTOR 1kΩ,1/1
R3092	MG RESISTOR 4.7kΩ,1
R3093	MG RESISTOR 1kΩ,1/1
R3094	MG RESISTOR 4.7kΩ,1/10W

R3095			MG RESISTOR 4.7kΩ,1/10W
R3096			MG RESISTOR 1kΩ,1/1
R3097			MG RESISTOR 4.7kΩ,1
R3103			MG RESISTOR 1kΩ,1/1
R3104			MG RESISTOR 4.7kΩ,1
R3105			MG RESISTOR 1kΩ,1/1
R3106			MG RESISTOR 1kΩ,1/1
R3201			MG RESISTOR 10kΩ,1/
R3202			MG RESISTOR 4.7kΩ,1
R3203			MG RESISTOR 10kΩ,1/
R3204			MG RESISTOR 2.2kΩ,1
R3205			RESISTOR 180Ω,1/4W
R3206			MG RESISTOR 18kΩ,1/
R3207			MG RESISTOR 18kΩ,1/
R3208			RESISTOR 180Ω,1/4W
R3209			RESISTOR 27kΩ,1/4W
R3210			MG RESISTOR 180Ω,1/
R3211			MG RESISTOR 27kΩ,1/
R3212			RESISTOR 470kΩ,1/4W
R3213			MG RESISTOR 330kΩ,1
R3214			MG RESISTOR 10kΩ,1/
R3215			MG RESISTOR 10kΩ,1/
R3216			MG RESISTOR 10kΩ,1/
R3217			MG RESISTOR 5.6kΩ,1
R3218			MG RESISTOR 4.7kΩ,1
R3219			MG RESISTOR 4.7kΩ,1
R3220			MG RESISTOR 100kΩ,1
R3222			MG RESISTOR 4.7kΩ,1
R3223			MG RESISTOR 4.7kΩ,1
R3224			MG RESISTOR 4.7kΩ,1
R3225			MG RESISTOR 10kΩ,1/
R3229			MG RESISTOR 1MΩ,1/1
R3230			MG RESISTOR 4.7kΩ,1
R3231			MG RESISTOR 1kΩ,1/1
R3233			MG RESISTOR 10kΩ,1/
R3234			MG RESISTOR 10kΩ,1/
R3235			MG RESISTOR 3.3kΩ,1
R3236			MG RESISTOR 3.3kΩ,1
R3237			MG RESISTOR 10kΩ,1/
R3238			MG RESISTOR 10kΩ,1/
R3239			MG RESISTOR 10kΩ,1/
R3240			MG RESISTOR 10kΩ,1/
R3241			MG RESISTOR 10kΩ,1/
R3242			MG RESISTOR 4.7kΩ,1
R3244			MG RESISTOR 10kΩ,1/
R3251			MG RESISTOR 10kΩ,1/
R4001			MG RESISTOR 4.7kΩ,1
R4003			MG RESISTOR 560Ω,1/
R4004			MG RESISTOR 560Ω,1/
R4005			MG RESISTOR 5.6kΩ,1
R4006			MG RESISTOR 0Ω,1/10
R4007			MG RESISTOR 1kΩ,1/1
R4008			MG RESISTOR 1kΩ,1/1
R4009			MG RESISTOR 1kΩ,1/1
R4010			MG RESISTOR 1kΩ,1/1
R4011			MG RESISTOR 3.9kΩ,1
R4012			MG RESISTOR 2.2kΩ,1
R4013			MG RESISTOR 1kΩ,1/1
R4014			MG RESISTOR 2.2kΩ,1
R4015			MG RESISTOR 22kΩ,1/
R4016			MG RESISTOR 10kΩ,1/
R4017			MG RESISTOR 1kΩ,1/1
R4018			MG RESISTOR 1kΩ,1/1
R4019			MG RESISTOR 10kΩ,1/
R4020			MG RESISTOR 10kΩ,1/
R4021			MG RESISTOR 10kΩ,1/
R5101			RESISTOR 330kΩ,1/4W
R5102			RESISTOR 330kΩ,1/4W
R5103			RESISTOR 68kΩ,1/4W
R5104	482205311154		OMF RESISTOR 150kΩ, 2W
R5106	482211711745		MF RESISTOR 0.39Ω,1W
R5107			RESISTOR 330Ω,1/2W
R5108			RESISTOR 2.2kΩ,1/4W
R5109			MG RESISTOR 680Ω,1/
R5110			MG RESISTOR 220kΩ,1
R5111			MG RESISTOR 820Ω,1/
R5112			MG RESISTOR 820Ω,1/
R5301			RESISTOR 1.8Ω,1/4W
R5302			MG RESISTOR 1kΩ,1/1
R5303			MG RESISTOR 1.2kΩ,1
R5304	482211713479	!	FUSI RESISTOR 220Ω,1/4W
R5305			RESISTOR 470Ω,1/4W
R5306			MG RESISTOR 33kΩ,1/10W
R5307			MG RESISTOR 1kΩ,1/1
R5308			MG RESISTOR 4.7kΩ,1
R5309			MG RESISTOR 2.2kΩ,1
R5310			MG RESISTOR 4.7kΩ,1
R5311			MG RESISTOR 2.2kΩ,1
R5312			MG RESISTOR 4.7kΩ,1
R5313			RESISTOR 2.2kΩ,1/4W
R5314			MG RESISTOR 2.2kΩ,1
R5317			MG RESISTOR 27kΩ,1/
R5318			MG RESISTOR 27kΩ,1/
R5319			RESISTOR 510Ω,1/4W
R5320			MG RESISTOR 470Ω,1/
R5321			MG RESISTOR 220Ω,1/
R5322			MG RESISTOR 47kΩ,1/
R5323			RESISTOR 47kΩ,1/4W
R5324			RESISTOR 1kΩ,1/4W
R5331			MG RESISTOR 0Ω,1/10
R6020			MG RESISTOR 0Ω,1/10
R6021			MG RESISTOR 0Ω,1/10
R6022			MG RESISTOR 0Ω,1/10
R6023			MG RESISTOR 0Ω,1/10
R6030			MG RESISTOR 1kΩ,1/1
R6031			MG RESISTOR 270Ω,1/
R6032			MG RESISTOR 3.9kΩ,1
R6033			MG RESISTOR 1.8kΩ,1
R6050			MG RESISTOR 100Ω,1/
R6051			MG RESISTOR 100Ω,1/10W
R6052			MG RESISTOR 100Ω,1/
R6082			MG RESISTOR 10kΩ,1/
R6508			MG RESISTOR 0Ω,1/10
R6510			MG RESISTOR 0Ω,1/10
R6553			RESISTOR 0Ω,1/4W
R6554			MG RESISTOR 0Ω,1/10
R7530			MG RESISTOR 75Ω,1/10W
VR2251	996500000895		TRIM RESISTOR 47K

CAPACITORS

C1		E CAPACITOR 10µF,16V
C3		CAPACITOR 0.01µF,50V
C5		CAPACITOR 0.01µF,50
C6		CAPACITOR 0.1µF,25V
C7		E CAPACITOR 100µF,1
C9		CAPACITOR 0.01µF,50
C11		CAPACITOR 0.01µF,50
C12		CAPACITOR 0.047µF,2
C13		E CAPACITOR 3.3µF,5
C14		CAPACITOR 0.033µF,2
C16		CAPACITOR 1µF,16V
C19		CAPACITOR 47pF,50V
C20		E CAPACITOR 2.2µF,5
C21		CAPACITOR 0.056µF,1
C23		CAPACITOR 0.022µF,5
C24		CAPACITOR 0.47µF,16
C25		CAPACITOR 0.1µF,25V
C27		CAPACITOR 100pF,50V
C29		E CAPACITOR 4.7µF,25V
C30		E CAPACITOR 4.7µF,25V
C31		CAPACITOR 0.022µF,50V
C32		CAPACITOR 0.01µF,50V
C34	996500000512	F CAPACITOR 0.1µF,50V
C37		E CAPACITOR 47µF,16V
C41		CAPACITOR 0.1µF,25V
C42		CAPACITOR 0.01µF,50
C43		CAPACITOR 0.01µF,50
C45		CAPACITOR 0.1µF,25V
C46		CAPACITOR 100pF,50V
C47		CAPACITOR 0.1µF,25V
C48		E CAPACITOR 47µF,6.3V
C49		CAPACITOR 220pF,50V
C54		E CAPACITOR 10µF,16V
C55		E CAPACITOR 10µF,16V
C56		E CAPACITOR 3.3µF,5
C57		CAPACITOR 0.1µF,25V
C58		CAPACITOR 0.1µF,25V
C59		CAPACITOR 0.047µF,2
C62		CAPACITOR 0.1µF,25V
C63		CAPACITOR 150pF,50V

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C64		E CAPACITOR 220µF,6
C65		CAPACITOR 0.1µF,25V
C73		CAPACITOR 0.01µF,50
C74		MG RESISTOR 0Ω,1/10
C76		CAPACITOR 0.01µF,50
C77		CAPACITOR 27pF,50V
C79		CAPACITOR 12pF,50V
C85		CAPACITOR 0.01µF,50
C86		E CAPACITOR 47µF,16
C87		CAPACITOR 0.01µF,50
C88		CAPACITOR 0.01µF,50
C89		CAPACITOR 0.01µF,50
C90		CAPACITOR 0.01µF,50
C91		CAPACITOR 0.1µF,25V
C92		MG RESISTOR 6.8kΩ,1
C98		CAPACITOR 1µF,16V
C107		CAPACITOR 5pF,50V
C134		CAPACITOR 0.1µF,25V
C141		CAPACITOR 0.1µF,25V
C164		CAPACITOR 0.01µF,50
C165		CAPACITOR 0.01µF,50
C201		E CAPACITOR 220µF,6
C204		CAPACITOR 10pF,50V
C206		CAPACITOR 33pF,50V
C207		CAPACITOR 33pF,50V
C209		CAPACITOR 0.47µF,16
C212		CAPACITOR 0.1µF,25V
C213		E CAPACITOR 4.7µF,2
C214		CAPACITOR 0.22µF,16
C215		CAPACITOR 0.22µF,16
C216		E CAPACITOR 220µF,6
C217		CAPACITOR 56pF,50V
C218		CAPACITOR 1µF,10V
C222		CAPACITOR 1µF,10V
C2002		E CAPACITOR 47µF,16
C2003		CAPACITOR 0.012µF,5
C2004		E CAPACITOR 22µF,16
C2005		CAPACITOR 0.001µF,5
C2006		CAPACITOR 330pF,50V
C2007		E CAPACITOR 10µF,16
C2008		CAPACITOR 0.0015µF,
C2009		E CAPACITOR 4.7µF,2
C2010		E CAPACITOR 4.7µF,2
C2011		CAPACITOR 0.033µF,2
C2013		CAPACITOR 0.033µF,2
C2015		E CAPACITOR 22µF,16
C2016		E CAPACITOR 4.7µF,2
C2051		CAPACITOR 330pF,50V
C2052	996500000896	F CAPACITOR 0.033µF 50V
C2053		CAPACITOR 0.0033µF,
C2054		CAPACITOR 0.01µF,50
C2055		E CAPACITOR 10µF,16
C2061	996500000896	F CAPACITOR 0.033µF 50V
C2062		CAPACITOR 0.0033µF,
C2063		CAPACITOR 0.01µF,50
C2064		E CAPACITOR 10µF,16
C2151		CAPACITOR 100pF,50V
C2152		CAPACITOR 0.01µF,50
C2201		E CAPACITOR 1µF,50V
C2202		E CAPACITOR 1µF,50V
C2204		E CAPACITOR 22µF,16
C2205		E CAPACITOR 4.7µF,2
C2206		E CAPACITOR 4.7µF,2
C2207		E CAPACITOR 47µF,6.
C2208		E CAPACITOR 10µF,16
C2209		E CAPACITOR 10µF,16
C2210		E CAPACITOR 10µF,16
C2211		E CAPACITOR 10µF,16
C2212		E CAPACITOR 47µF,6.
C2213		E CAPACITOR 47µF,6.
C2214		CAPACITOR 0.01µF,50V
C2215		E CAPACITOR 10µF,16V
C2216		E CAPACITOR 1µF,50V
C2217		E CAPACITOR 1µF,50V
C2218		E CAPACITOR 10µF,16V
C2219		E CAPACITOR 10µF,16V
C2220		E CAPACITOR 47µF,16V
C2221		E CAPACITOR 10µF,16V
C2222		E CAPACITOR 22µF,16V
C2225		E CAPACITOR 0.22µF,
C2226		E CAPACITOR 10µF,16V
C2227		E CAPACITOR 10µF,16V

C2230			CAPACITOR 0.047µF,1
C2231			CAPACITOR 0.015µF,5
C2232			E CAPACITOR 0.22µF,
C2233			CAPACITOR 0.015µF,5
C2234			CAPACITOR 0.047µF,1
C2251			CAPACITOR 0.1µF,25V
C2252			CAPACITOR 0.0022µF,
C2253			CAPACITOR 0.0022µF,
C2256			CAPACITOR 0.1µF,25V
C2257			E CAPACITOR 47µF,6.
C2258			CAPACITOR 0.1µF,25V
C2259			CAPACITOR 0.1µF,25V
C2260			CAPACITOR 180pF,50V
C2261			CAPACITOR 0.01µF,50
C3002			CAPACITOR 0.01µF,50
C3003			E CAPACITOR 10µF,50
C3004			CAPACITOR 0.1µF,25V
C3011			E CAPACITOR 4700µF,
C3012			E CAPACITOR 100µF,6
C3013			CAPACITOR 0.01µF,50
C3014	996500000473		TA E CAPACITOR 22µF, 6.3V
C3016			CAPACITOR 0.1µF,25V
C3019			CAPACITOR 100pF,50V
C3020			CAPACITOR 100pF,50V
C3021			CAPACITOR 100pF,50V
C3022			CAPACITOR 0.1µF,25V
C3023	482212411662		TA E CAPACITOR 10µF, 6.3V
C3024			CAPACITOR 22pF,50V
C3025	482212511112		TRIM CAPACITOR
C3026			CAPACITOR 0.01µF,50
C3027	482212411662		TA E CAPACITOR 10µF, 6.3V
C3028			CAPACITOR 100pF,50V
C3029			CAPACITOR 100pF,50V
C3030	996500000473		TA E CAPACITOR 22µF, 6.3V
C3031			CAPACITOR 0.1µF,25V
C3032			CAPACITOR 0.1µF,25V
C3033			CAPACITOR 0.1µF,25V
C3036			CAPACITOR 18pF,50V
C3037			CAPACITOR 12pF,50V
C3038			CAPACITOR 100pF,50V
C3039			CAPACITOR 100pF,50V
C3040			CAPACITOR 1µF,16V
C4001	996500000473		TA E CAPACITOR 22µF, 6.3V
C4002			CAPACITOR 0.1µF,25V
C4003			CAPACITOR 0.001µF,5
C4004	996500000473		TA E CAPACITOR 22µF
C4005			CAPACITOR 0.0022µF,
C4006	996500000474		TA E CAPACITOR 47µF
C4007			CAPACITOR 560pF,50V
C4008			CAPACITOR 1µF,10V
C4009			CAPACITOR 0.056µF,5
C4010			CAPACITOR 0.022µF,2
C4011			CAPACITOR 0.1µF,25V
C4012			CAPACITOR 0.22µF,25
C4013			CAPACITOR 0.056µF,5
C4014			CAPACITOR 100pF,50V
C4015			CAPACITOR 0.001µF,5
C5001	482212110675	!	F CAPACITOR 0.068µF, 250V
C5002	996500000897	!	F CAPACITOR 0.033µF, 250V
C5005	482212614039	!	CAPACITOR 0.0022µF, 250V
C5006			E CAPACITOR 68µF,400V
C5101			CAPACITOR 0.0047µF,
C5102			CAPACITOR 33pF,1kV
C5104			E CAPACITOR 1µF,50V
C5105	482212170419		F CAPACITOR 0.018µF, 50V
C5106			CAPACITOR 270pF,50V
C5107	532212142386		F CAPACITOR 0.1µF,50V
C5110			CAPACITOR 33pF,1kV
C5201			E CAPACITOR 220µF,6
C5202			E CAPACITOR 1200µF,
C5203			E CAPACITOR 2200µF,
C5204			E CAPACITOR 4.7µF,10V
C5205			E CAPACITOR 10µF,50
C5206			E CAPACITOR 180µF,25V
C5207			E CAPACITOR 220µF,10V
C5208			E CAPACITOR 220µF,1
C5301			E CAPACITOR 220µF,6
C5302			E CAPACITOR 10µF,16
C5303			E CAPACITOR 100µF,1
C5304	482212110554		F CAPACITOR 0.018µF, 50V
C5305			CAPACITOR 0.01µF,50V
C5306			E CAPACITOR 100µF,16V

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C5307			E CAPACITOR 22µF,16
C5308			E CAPACITOR 47µF,25
C5309			E CAPACITOR 100µF,1
C5310			E CAPACITOR 1µF,50V
C6006			CAPACITOR 0.01µF,50
C6007			E CAPACITOR 330µF,1
C6008			CAPACITOR 0.01µF,50
C6012			E CAPACITOR 47µF,16
C6013			CAPACITOR 0.01µF,50
C6014			CAPACITOR 0.01µF,50
C6016			CAPACITOR 0.01µF,50
C6020			CAPACITOR 100pF,50V
C6021			CAPACITOR 100pF,50V
C6022			CAPACITOR 100pF,50V
C6032			CAPACITOR 0.047µF,5
C6033			MG RESISTOR 0Ω,1/10
C6037			E CAPACITOR 10µF,50
C6055			CAPACITOR 22pF,50V

COILS

L1	482215711354		COIL 10µH
L3	996500000898		COIL 6.8µH
L4	482215711354		COIL 10µH
L7	482215711354		COIL 10µH
L9	482215711354		COIL 10µH
L12	482215220678		COIL 33µH
L13	996500000899		COIL 12µH
L14	482215711752		COIL 82µH
L16	482215711354		COIL 10µH
L18	996500000900		COIL 12µH
L201	482215753302		COIL 1µH
L202	482215220678		COIL 33µH
L203	996500000475		COIL 22µH
L204	482215711354		COIL 10µH
L206	996500000475		COIL 22µH
L2251	482215711354		COIL 10µH
L2252	482215711356		COIL 150µH
L3011	996500000901		COIL 33µH
L3012	996500000901		COIL 33µH
L5201	482215711287		COIL 33µH
L5202	996500000902		COIL 33µH
L6002	482215711354		COIL 10µH
L6004	482215711354		COIL 10µH
L6031	482215753302		COIL 1µH

CRYSTALS

X1	996500000273		CRYSTAL RESONATOR
X3001	482224210938		CRYSTAL RESONATOR
X3002	996500000274		CRYSTAL RESONATOR

SWITCH

S3002	482227614013		PUSH SWITCH

PHOTO COUPLERS

PC3001	482213011171		GP3S123
PC3002	482213011171		GP3S123
PC5101	482213010431	!	PC123F2
PC5301	482213010421	!	PS2501-1

TRANSFORMERS

T2051	482214611074		OSC TRANSFORMER
T2052	482214611075		OSC TRANSFORMER
T5001	996500000903	!	SW TRANSFORMER

CONNECTORS

CN1	482226410399		FPC CONNECTOR,(1-11)
CN2001	482226511355		FPC CONNECTOR,(1-7)A/C HEAD
CN2002	482226511356		CONNECTOR,(1-2)FE HEAD
CN3001	482226511171		FPC CONNECTOR,(1-5)DRUM MDA
CN3002	482226511356		CONNECTOR,(1-2)L.MOTOR
CN3003	482226511621		CONNECTOR,(1-8)CAP.MOTOR
CN3004	482226511358		CONNECTOR,(1-4)ROTARY EN
CN3011	482226511187		FPC CONNECTOR,(1-14) FRONT
CN3012	482226511189		FPC CONNECTOR,(1-6)JOG
CN5001	482226511371	!	CONNECTOR,(1-2)AC IN
CN7501	996500000922		CONNECTOR,(1-9)TERMINAL
CN7502	996500000923		CONNECTOR,(1-10)TERMINAL
CN7503	996500000923		CONNECTOR,(1-10)TERMINAL
CN7504	482226511171		FPC CONNECTOR,(1-5)FRONT

CIRCUIT PROTECTORS

CP4001	532215753342	!	ICP-N15
CP5301	482220961685	!	ICP-N38
CP5302	482220963612	!	ICP-N25

FUSE

F5001	482207032002	!	FUSE T2.0A

5. 3D SVHS BOARD

PRINTED CIRCUIT BOARD

PW1	996500000924		3D SVHS BOARD ASSY

INTEGRATED CIRCUITS

IC1001	482220916458		JCP8008
IC1002	996500000925		VC2076MP-XE
IC1006	996500000926		HA118092FP1
IC1007	996500000927		BA10358F-XE
IC1401	996500000928		JCP8010-2
IC1402	996500000929		MN47V77S-XE

TRANSISTORS

Q1004	482213060997		DTC144WU
Q1005	482213060997		DTC144WU
Q1006	482213060862		2SA1576A/QR/-X
Q1007	482213060669		2SC4081/QRS/-X
Q1012	482213060669		2SC4081/QRS/-X
Q1014	482213060669		2SC4081/QRS/-X
Q1015	482213060669		2SC4081/QRS/-X
Q1016	482213060997		DTC144WU
Q1021	482213060862		2SA1576A/QR/-X
Q1022	482213060997		DTC144WU
Q1401	996500000930		2SC1317/RS/-T
Q1402	482213060669		2SC4081/QRS/-X
Q1403	482213060669		2SC4081/QRS/-X
Q1404	996500000463		2SC4081/S/-X
Q1405	482213060669		2SC4081/QRS/-X
Q1406	482213060862		2SA1576A/QR/-X
Q1407	482213060862		2SA1576A/QR/-X
Q1408	482213060862		2SA1576A/QR/-X
Q1409	482213060862		2SA1576A/QR/-X
Q1410	482213060669		2SC4081/QRS/-X
Q1411	482213060862		2SA1576A/QR/-X
Q1412	482213060997		DTC144WU
Q1413	482213060997		DTC144WU
Q1414	482213060997		DTC144WU
Q1416	482213060997		DTC144WU
Q1417	482213060669		2SC4081/QRS/-X
Q1418	482213060669		2SC4081/QRS/-X

! ... Safety component, use only this type

DIODES

D1002	482213032778	1SS133
D1003	482213032778	1SS133
D1004	482213032778	1SS133
D1006	482213032778	1SS133
D1401	996500000931	RD4.3ES/B2/-T2
D1402	482213032778	1SS133

RESISTORS

R1002		MG RESISTOR 10kΩ,1/
R1003		MG RESISTOR 220Ω,1/
R1004		MG RESISTOR 0Ω,1/10
R1008		MG RESISTOR 10kΩ,1/
R1009		MG RESISTOR 1.2MΩ,1
R1010	996500000519	CMF RESISTOR 3.3kΩ, 1/10W
R1011	996500000519	CMF RESISTOR 3.3kΩ, 1/10W
R1012	996500000509	CMF RESISTOR 1.5kΩ, 1/10W
R1013	996500000520	CMF RESISTOR 470Ω,1/10W
R1014	996500000521	CMF RESISTOR 1kΩ,1/10W
R1015	996500000521	CMF RESISTOR 1kΩ,1/10W
R1016		MG RESISTOR 1.2kΩ,1/10W
R1017		MG RESISTOR 1.6kΩ,1/10W
R1018		MG RESISTOR 150Ω,1/10W
R1019		MG RESISTOR 390Ω,1/10W
R1020		MG RESISTOR 3.3kΩ,1
R1021		MG RESISTOR 3.3kΩ,1
R1023		MG RESISTOR 2.7kΩ,1
R1025		MG RESISTOR 82kΩ,1/
R1026		MG RESISTOR 1kΩ,1/1
R1027		MG RESISTOR 560Ω,1/
R1028		MG RESISTOR 560Ω,1/
R1029		MG RESISTOR 47kΩ,1/
R1030		MG RESISTOR 47kΩ,1/
R1031		MG RESISTOR 5.6kΩ,1
R1032		MG RESISTOR 180Ω,1/
R1035		MG RESISTOR 0Ω,1/10
R1037		MG RESISTOR 0Ω,1/10
R1038		MG RESISTOR 10kΩ,1/
R1039		MG RESISTOR 390kΩ,1
R1045		MG RESISTOR 2.7kΩ,1
R1046		MG RESISTOR 27kΩ,1/
R1047		MG RESISTOR 10kΩ,1/
R1048		MG RESISTOR 10kΩ,1/
R1049		MG RESISTOR 4.7MΩ,1
R1053		MG RESISTOR 1kΩ,1/1
R1054		MG RESISTOR 220Ω,1/
R1055	996500000932	CMF RESISTOR 56kΩ,1/10W
R1056	996500000933	CMF RESISTOR 220kΩ, 1/10W
R1058		MG RESISTOR 27kΩ,1/10W
R1059		MG RESISTOR 0Ω,1/10W
R1060		MG RESISTOR 0Ω,1/10W
R1063		MG RESISTOR 1.5kΩ,1
R1064		MG RESISTOR 3.3kΩ,1
R1065		MG RESISTOR 1kΩ,1/1
R1066		MG RESISTOR 2.7kΩ,1
R1067		MG RESISTOR 1kΩ,1/1
R1068		MG RESISTOR 360Ω,1/
R1069		MG RESISTOR 470Ω,1/
R1070		MG RESISTOR 390Ω,1/
R1071		MG RESISTOR 180kΩ,1
R1072		MG RESISTOR 6.8kΩ,1
R1073		MG RESISTOR 0Ω,1/10
R1401		MG RESISTOR 330Ω,1/
R1402		MG RESISTOR 100Ω,1/
R1403		MG RESISTOR 22kΩ,1/
R1404		MG RESISTOR 12kΩ,1/
R1405		MG RESISTOR 1kΩ,1/1
R1406		MG RESISTOR 470Ω,1/
R1407		MG RESISTOR 820Ω,1/
R1408		MG RESISTOR 2.2kΩ,1
R1409		MG RESISTOR 680Ω,1/
R1410		MG RESISTOR 22kΩ,1/
R1411		MG RESISTOR 24kΩ,1/
R1412		MG RESISTOR 100kΩ,1
R1413		MG RESISTOR 470Ω,1/
R1414		MG RESISTOR 330Ω,1/
R1415		MG RESISTOR 1kΩ,1/1
R1416		MG RESISTOR 470Ω,1/10W
R1417		MG RESISTOR 820Ω,1/
R1418		MG RESISTOR 470Ω,1/
R1419		MG RESISTOR 220Ω,1/
R1420		MG RESISTOR 1.5kΩ,1
R1422		MG RESISTOR 390Ω,1/
R1423		MG RESISTOR 820Ω,1/
R1425		MG RESISTOR 1kΩ,1/1
R1428		MG RESISTOR 0Ω,1/10
R1429		MG RESISTOR 0Ω,1/10
R1430		MG RESISTOR 0Ω,1/10
R1431		MG RESISTOR 0Ω,1/10
R1432		MG RESISTOR 0Ω,1/10
R1433		MG RESISTOR 0Ω,1/10
R1434		MG RESISTOR 47kΩ,1/
R1435		MG RESISTOR 2.4kΩ,1
R1436		MG RESISTOR 15kΩ,1/
R1437		MG RESISTOR 12kΩ,1/
R1438		MG RESISTOR 820Ω,1/
R1439		MG RESISTOR 100Ω,1/
R1440		MG RESISTOR 22kΩ,1/
R1442		MG RESISTOR 22kΩ,1/
R1443		MG RESISTOR 4.7kΩ,1
R1444		MG RESISTOR 220Ω,1/
R1445		MG RESISTOR 1kΩ,1/1
R1446		MG RESISTOR 2.2kΩ,1
R1447		MG RESISTOR 1.5kΩ,1
R1448		MG RESISTOR 10kΩ,1/
R1449		MG RESISTOR 47Ω,1/1
R1451		MG RESISTOR 680Ω,1/
R1452		MG RESISTOR 1kΩ,1/1
R1454		MG RESISTOR 1kΩ,1/1
R1455		MG RESISTOR 470Ω,1/
R1456		MG RESISTOR 470Ω,1/
R1457		MG RESISTOR 1kΩ,1/1
R1458		MG RESISTOR 1kΩ,1/1
R1459		MG RESISTOR 1kΩ,1/1
R1460		MG RESISTOR 100kΩ,1
R1461		MG RESISTOR 1.8kΩ,1
R1462		MG RESISTOR 2.7kΩ,1
R1463		MG RESISTOR 6.8kΩ,1
R1465		MG RESISTOR 820Ω,1/
R1467		MG RESISTOR 6.8kΩ,1
R1468		MG RESISTOR 1.6kΩ,1
R1470		MG RESISTOR 10kΩ,1/
R1471		MG RESISTOR 33kΩ,1/
R1472		MG RESISTOR 4.7kΩ,1/10w

VR1002	996500000934	V RESISTOR,P.BURST ADJ 100K
VR1401	996500000511	TRIM RESISTOR 10K

CAPACITORS

C1001		E CAPACITOR 47µF,6.
C1002		E CAPACITOR 0.47µF,
C1003		E CAPACITOR 10µF,16
C1005		E CAPACITOR 4.7µF,2
C1006		CAPACITOR 0.01µF,50
C1007		CAPACITOR 0.1µF,25V
C1010		CAPACITOR 0.1µF,25V
C1011		CAPACITOR 15pF,50V
C1013		CAPACITOR 0.1µF,25V
C1014		E CAPACITOR 2.2µF,5
C1015		E CAPACITOR 4.7µF,2
C1016		E CAPACITOR 2.2µF,5
C1017		CAPACITOR 0.01µF,50
C1019		CAPACITOR 0.01µF,50
C1020		CAPACITOR 0.01µF,50
C1021		CAPACITOR 0.01µF,50
C1022		E CAPACITOR 1µF,50V
C1023		E CAPACITOR 2.2µF,5
C1024		CAPACITOR 0.01µF,50
C1026		CAPACITOR 0.1µF,25V
C1027		CAPACITOR 0.1µF,25V
C1028		E CAPACITOR 330µF,6
C1029		E CAPACITOR 0.1µF,5
C1030		E CAPACITOR 1µF,50V
C1031		E CAPACITOR 2.2µF,5
C1033		E CAPACITOR 1µF,50V
C1034	482212411744	NP E CAPACITOR 1µF, 50V
C1035		E CAPACITOR 4.7µF,25V

! ... Safety component, use only this type

C1036	E CAPACITOR 22µF,6.
C1037	E CAPACITOR 2.2µF,5
C1038	E CAPACITOR 2.2µF,5
C1039	E CAPACITOR 47µF,16
C1040	CAPACITOR 0.01µF,50
C1041	CAPACITOR 300pF,50V
C1042	CAPACITOR 300pF,50V
C1043	CAPACITOR 220pF,50V
C1044	CAPACITOR 82pF,50V
C1045	CAPACITOR 0.01µF,50
C1046	CAPACITOR 270pF,50V
C1047	CAPACITOR 100pF,50V
C1048	CAPACITOR 180pF,50V
C1049	CAPACITOR 300pF,50V
C1050	CAPACITOR 300pF,50V
C1056	CAPACITOR 0.01µF,50
C1057	CAPACITOR 0.01µF,50
C1058	CAPACITOR 0.01µF,50
C1063	CAPACITOR 100pF,50V
C1064	CAPACITOR 0.01µF,50
C1065	E CAPACITOR 220µF,6
C1066	CAPACITOR 0.022µF,2
C1067	CAPACITOR 0.01µF,50
C1068	E CAPACITOR 1µF,50V
C1069	E CAPACITOR 10µF,16
C1070	CAPACITOR 0.01µF,50
C1071	CAPACITOR 0.01µF,50
C1072	CAPACITOR 0.01µF,50
C1073	CAPACITOR 15pF,50V
C1074	CAPACITOR 0.01µF,50
C1082	CAPACITOR 0.01µF,50
C1086	CAPACITOR 0.01µF,50
C1087	CAPACITOR 0.01µF,50
C1088	CAPACITOR 0.01µF,50
C1089	CAPACITOR 0.01µF,50
C1092	CAPACITOR 0.01µF,50
C1095	CAPACITOR 0.01µF,50
C1401	E CAPACITOR 33µF,16
C1402	CAPACITOR 0.01µF,50
C1403	CAPACITOR 0.01µF,50
C1404	CAPACITOR 0.01µF,50
C1405	CAPACITOR 22pF,50V
C1406	CAPACITOR 6pF,50V
C1407	CAPACITOR 39pF,50V
C1408	CAPACITOR 0.1µF,25V
C1409	CAPACITOR 0.01µF,50
C1410	E CAPACITOR 330µF,6
C1411	E CAPACITOR 10µF,16
C1412	CAPACITOR 0.1µF,25V
C1413	CAPACITOR 0.1µF,25V
C1414	CAPACITOR 0.01µF,50
C1415	CAPACITOR 220pF,50V
C1416	CAPACITOR 390pF,50V
C1417	CAPACITOR 68pF,50V
C1418	CAPACITOR 8pF,50V
C1419	CAPACITOR 0.1µF,25V
C1420	CAPACITOR 0.1µF,25V
C1421	CAPACITOR 68pF,50V
C1422	CAPACITOR 33pF,50V
C1424	CAPACITOR 0.1µF,25V
C1425	E CAPACITOR 330µF,6
C1426	CAPACITOR 0.01µF,50
C1427	CAPACITOR 0.1µF,25V
C1428	CAPACITOR 0.1µF,25V
C1429	CAPACITOR 0.1µF,25V
C1430	CAPACITOR 0.1µF,25V
C1431	CAPACITOR 0.1µF,25V
C1432	E CAPACITOR 4.7µF,2
C1433	CAPACITOR 0.1µF,25V
C1434	E CAPACITOR 330µF,6
C1435	E CAPACITOR 1µF,50V
C1436	CAPACITOR 0.1µF,25V
C1437	CAPACITOR 0.1µF,25V
C1438	CAPACITOR 0.1µF,25V
C1439	CAPACITOR 0.1µF,25V
C1440	CAPACITOR 0.1µF,25V
C1441	CAPACITOR 0.1µF,25V
C1442	CAPACITOR 0.1µF,25V
C1443	CAPACITOR 0.1µF,25V
C1444	E CAPACITOR 1µF,50V
C1445	CAPACITOR 0.1µF,25V
C1446	CAPACITOR 0.1µF,25V
C1447	CAPACITOR 0.0022µF,
C1448	CAPACITOR 0.1µF,25V
C1449	E CAPACITOR 330µF,6
C1450	CAPACITOR 0.1µF,25V
C1451	CAPACITOR 0.1µF,25V
C1454	CAPACITOR 22pF,50V
C1455	CAPACITOR 39pF,50V
C1457	CAPACITOR 0.1µF,25V
C1458	CAPACITOR 0.01µF,50
C1459	CAPACITOR 47pF,50V
C1460	CAPACITOR 47pF,50V
C1461	CAPACITOR 47pF,50V
C1462	CAPACITOR 47pF,50V
C1463	MG RESISTOR 0Ω,1/10
C1464	CAPACITOR 33pF,50V
C1465	CAPACITOR 47pF,50V
C1468	CAPACITOR 47pF,50V
C1469	CAPACITOR 47pF,50V
C1470	CAPACITOR 47pF,50V
C1471	CAPACITOR 47pF,50V
C1472	CAPACITOR 47pF,50V
C1473	CAPACITOR 47pF,50V

COILS

L1001	482215711288	COIL 22µH
L1004	482215711746	COIL 68µH
L1006	482215711284	COIL 100µH
L1008	482215711354	COIL 10µH
L1401	482215220678	COIL 33µH
L1402	482215711354	COIL 10µH
L1404	482215762767	COIL 8.2µH
L1405	482215711747	COIL 15µH
L1406	996500000898	COIL 6.8µH
L1407	482215711354	COIL 10µH
L1408	482215711354	COIL 10µH
L1409	482215220678	COIL 33µH
L1410	482215770503	COIL 4.7µH
L1411	996500000904	COIL 1µH
LC1401	482215711732	NOISE FILTER
LC1402	996500000905	NOISE FILTER

CONNECTORS

CN1001	482226511417	HEADER PIN
CN1002	482226511417	HEADER PIN
CN1003	996500000906	FPC CONNECTOR,(1-7)

6. TERMINAL BOARD

PRINTED CIRCUIT BOARD

PW1	996500000907	TERMINAL BOARD ASSY

INTEGRATED CIRCUITS

IC7101	996500000908	BH7635S
IC7102	996500000909	MM1231XF

TRANSISTORS

Q7102	482213061075	2SB1218A/QR/-X
Q7103	482213061075	2SB1218A/QR/-X
Q7104	482213061075	2SB1218A/QR/-X
Q7107	482213061075	2SB1218A/QR/-X
Q7108	482213060873	2SD1819A/QRS/-X
Q7109	482213060873	2SD1819A/QRS/-X
Q7110	482213060873	2SD1819A/QRS/-X
Q7111	482213061287	UN5211
Q7112	482213060873	2SD1819A/QRS/-X

RESISTORS

R7104	MG RESISTOR 75Ω,1/10W
R7105	MG RESISTOR 75Ω,1/1
R7106	MG RESISTOR 75Ω,1/1
R7107	MG RESISTOR 75Ω,1/1
R7108	RESISTOR 390Ω,1/2W
R7109	MG RESISTOR 0Ω,1/10
R7110	RESISTOR 390Ω,1/2W
R7111	MG RESISTOR 100Ω,1/
R7112	MG RESISTOR 180Ω,1/
R7113	MG RESISTOR 430Ω,1/10W
R7114	MG RESISTOR 470Ω,1/
R7116	MG RESISTOR 0Ω,1/10
R7117	MG RESISTOR 0Ω,1/10
R7121	MG RESISTOR 75Ω,1/1
R7122	IM BUS WIRE
R7123	MG RESISTOR 100Ω,1/
R7124	MG RESISTOR 100Ω,1/
R7125	MG RESISTOR 100Ω,1/
R7126	MG RESISTOR 100Ω,1/
R7127	RESISTOR 75Ω,1/4W
R7128	RESISTOR 10kΩ,1/4W
R7129	MG RESISTOR 10kΩ,1/
R7130	MG RESISTOR 220Ω,1/
R7131	RESISTOR 390Ω,1/2W
R7132	MG RESISTOR 68Ω,1/1
R7133	MG RESISTOR 3.3kΩ,1
R7134	MG RESISTOR 4.7kΩ,1
R7135	MG RESISTOR 0Ω,1/10
R7136	MG RESISTOR 2.7kΩ,1
R7137	MG RESISTOR 1kΩ,1/1
R7138	MG RESISTOR 560Ω,1/
R7139	MG RESISTOR 6.8kΩ,1
R7140	MG RESISTOR 75Ω,1/1
R7141	MG RESISTOR 100Ω,1/
R7142	MG RESISTOR 100Ω,1/
R7143	MG RESISTOR 75Ω,1/1
R7144	MG RESISTOR 75Ω,1/1
R7145	MG RESISTOR 100Ω,1/
R7146	MG RESISTOR 100Ω,1/
R7147	MG RESISTOR 2.2kΩ,1
R7149	MG RESISTOR 22kΩ,1/
R7157	MG RESISTOR 0Ω,1/10
R7162	MG RESISTOR 100Ω,1/

CAPACITORS

C7102	E CAPACITOR 470µF,6
C7103	CAPACITOR 0.01µF,50
C7104	E CAPACITOR 47µF,16
C7105	CAPACITOR 0.01µF,50
C7106	CAPACITOR 0.022µF,5
C7108	CAPACITOR 0.022µF,5
C7109	E CAPACITOR 47µF,16
C7110	CAPACITOR 0.01µF,50
C7112	CAPACITOR 33pF,50V
C7113	CAPACITOR 0.022µF,5
C7114	CAPACITOR 0.022µF,5
C7115	CAPACITOR 680pF,50V
C7116	CAPACITOR 680pF,50V
C7119	CAPACITOR 0.001µF,5
C7120	CAPACITOR 0.001µF,5
C7124	E CAPACITOR 47µF,16
C7125	E CAPACITOR 47µF,16
C7126	MG RESISTOR 0Ω,1/10
C7127	CAPACITOR 0.01µF,50
C7128	CAPACITOR 680pF,50V
C7129	CAPACITOR 680pF,50V
C7133	CAPACITOR 0.001µF,5
C7134	CAPACITOR 0.001µF,5
C7137	E CAPACITOR 100µF,1
C7138	CAPACITOR 0.01µF,50
C7139	CAPACITOR 0.01µF,50
C7140	CAPACITOR 0.01µF,50
C7142	CAPACITOR 0.01µF,50
C7143	E CAPACITOR 10µF,16
C7144	CAPACITOR 0.01µF,50
C7146	MG RESISTOR 0Ω,1/10
C7147	E CAPACITOR 10µF,16
C7148	CAPACITOR 100pF,50V
C7150	CAPACITOR 0.001µF,5
C7152	CAPACITOR 0.001µF,5
C7158	CAPACITOR 47pF,50V
C7161	E CAPACITOR 47µF,16

COILS

L7105	996500000910	COIL 1µH
L7107	996500000911	COIL 0.22µH
L7108	482215771249	COIL 4.7µH
L7109	482215771249	COIL 4.7µH
L7110	482215771249	COIL 4.7µH
L7111	482215771249	COIL 4.7µH
L7112	996500000910	COIL 1µH
L7113	482215771249	COIL 4.7µH
L7114	482215771249	COIL 4.7µH
L7115	482215771249	COIL 4.7µH
L7116	482215771249	COIL 4.7µH
L7121	482215771249	COIL 4.7µH
L7123	482215771249	COIL 4.7µH

SWITCHES

SW7101	996500000912	SLIDE SWITCH
J7101	482226511443	RGB21PIN SOCKET,AV1
J7102	482226511443	RGB21PIN SOCKET,AV2
J7103	996500000913	PIN JACK,A.OUT(R)
J7104	996500000914	PIN JACK,A.OUT(L)
J7107	482226511418	S JACK,S OUT
J7110	482226732001	MINI JACK,R.PAUSE

CONNECTORS

CN7101	996500000915	CONNECTOR,(1-9)MAIN
CN7102	996500000916	CONNECTOR,(1-10)MAIN
CN7103	996500000916	CONNECTOR,(1-10)MAIN
CN7104	482226511361	FPC CONNECTOR,(1-7)
CN7105	482226710949	FPC CONNECTOR,(1-4)

7. AUDIO CONTROL

CONNECTOR

CN1	482226511361	FPC CONNECTOR

8. DEMOD BOARD ASSEMBLY

PRINTED CIRCUIT BOARD

PW1	996500000516	DEMOD BOARD ASSY

INTEGRATED CIRCUIT

IC6701	996500000517	MSP34VCD

TRANSISTORS

Q6701	482213062793	2SC3068
Q6702	482213011393	2SC3354/TS/-T
Q6704	482213061906	DTC114EU
Q6705	482213061906	DTC114EU

DIODES

D6702	482213030862	MTZJ9.1B
D6703	482213030621	1N4148M
D6704	482213030621	1N4148M

RESISTORS

R6701	MG RESISTOR 100Ω,1/10W
R6702	MG RESISTOR 100Ω,1/
R6703	MG RESISTOR 270Ω,1/
R6704	MG RESISTOR 100Ω,1/
R6705	MG RESISTOR 4.7kΩ,1
R6706	MG RESISTOR 3.9kΩ,1
R6707	MG RESISTOR 47Ω,1/1
R6708	MG RESISTOR 1kΩ,1/1
R6709	MG RESISTOR 270Ω,1/
R6710	MG RESISTOR 150Ω,1/
R6712	MG RESISTOR 1kΩ,1/1
R6713	MG RESISTOR 10kΩ,1/
R6714	MG RESISTOR 1kΩ,1/1
R6715	MG RESISTOR 22kΩ,1/
R6716	MG RESISTOR 1kΩ,1/10W
R6717	MG RESISTOR 22kΩ,1/
R6718	MG RESISTOR 680kΩ,1/10W

CAPACITORS

C6703	E CAPACITOR 33µF,16V
C6704	E CAPACITOR 100µF,16V
C6705	CAPACITOR 0.01µF,50
C6706	CAPACITOR 0.022µF,50V
C6707	CAPACITOR 0.01µF,50
C6708	CAPACITOR 0.01µF,50
C6709	E CAPACITOR 33µF,16
C6710	CAPACITOR 0.0068µF,
C6711	CAPACITOR 0.0068µF,
C6712	E CAPACITOR 2.2µF,5
C6713	E CAPACITOR 2.2µF,5
C6714	CAPACITOR 0.22µF,16
C6717	CAPACITOR 0.022µF,5
C6718	E CAPACITOR 33µF,16
C6719	E CAPACITOR 10µF,16
C6720	E CAPACITOR 10µF,16
C6721	CAPACITOR 0.01µF,50
C6722	E CAPACITOR 10µF,16
C6723	CAPACITOR 0.01µF,50
C6727	CAPACITOR 47pF,50V
C6728	CAPACITOR 47pF,50V
C6729	CAPACITOR 8pF,50V
C6730	CAPACITOR 1pF,50V

COILS

L6701	482215753302	COIL 1µH
L6702	482215711755	COIL 3.3µH
L6703	482215711467	COIL 39µH
L6704	482215753302	COIL 1µH
L6705	482215711478	COIL 10µH
LC6701	482215711749	NOISE FILTER

CRYSTAL

X6701	482224210963	CRYSTAL RESONATOR

CONNECTOR

CN6701	482226511446	HEADER PIN(1-11)

9. SW/DISPLAY BOARD

PRINTED CIRCUIT BOARD

PW1	996500000917	DISPLAY BOARD ASSY

F.L. TUBE

DI7001	482213500247	QLF0032-002

INTEGRATED CIRCUITS

IC7001	482220916658	M35500BGP
IC7002	482220916157	PNA4655M00XB

DIODES

D7002	482213080793	RD9.1ES/B2/-T2
D7003	482213032778	1SS133
D7004	482213032778	1SS133
D7006	482213032778	1SS133
D7009	482213010433	SLR-342VC3F
D7011	482213010432	SLR-342MC3F

RESISTORS

R7001	RESISTOR 470Ω,1/4W
R7002	RESISTOR 470Ω,1/4W
R7003	RESISTOR 470Ω,1/4W
R7004	RESISTOR 470Ω,1/4W
R7005	RESISTOR 10kΩ,1/4W
R7006	RESISTOR 10kΩ,1/4W
R7007	RESISTOR 10kΩ,1/4W
R7008	RESISTOR 10kΩ,1/4W
R7013	RESISTOR 10kΩ,1/4W
R7015	RESISTOR 100kΩ,1/4W
R7020	RESISTOR 10kΩ,1/4W
R7021	RESISTOR 1.2kΩ,1/4W
R7022	RESISTOR 1.8kΩ,1/4W
R7023	RESISTOR 2.2kΩ,1/4W
R7024	RESISTOR 2.7kΩ,1/4W
R7025	RESISTOR 4.7kΩ,1/4W
R7026	RESISTOR 6.8kΩ,1/4W
R7030	RESISTOR 10kΩ,1/4W
R7031	RESISTOR 1.2kΩ,1/4W
R7032	RESISTOR 1.8kΩ,1/4W
R7033	RESISTOR 4.7kΩ,1/4W
R7035	RESISTOR 4.7kΩ,1/4W
R7036	RESISTOR 68kΩ,1/4W
R7040	RESISTOR 330Ω,1/4W
R7042	RESISTOR 330Ω,1/4W

CAPACITORS

C7001	CAPACITOR 0.1µF,50V
C7002	E CAPACITOR 10µF,50
C7007	E CAPACITOR 47µF,50
C7009	CAPACITOR 15pF,50V
C7010	CAPACITOR 0.1µF,50V
C7011	E CAPACITOR 220µF,1
C7012	CAPACITOR 0.0033µF,
C7019	CAPACITOR 0.022µF,2
C7192	CAPACITOR 680pF,50V
C7194	CAPACITOR 680pF,50V

COILS

L7191	996500000918	RESISTOR 100Ω,1/4W
L7192	996500000918	RESISTOR 100Ω,1/4W
L7196	996500000910	COIL 1µH

SWITCHES

S7001	482227614029	TACT SWITCH,POWER
S7002	482227614029	TACT SWITCH,CH+
S7003	482227614029	TACT SWITCH,CH-
S7004	482227614029	TACT SWITCH,REC
S7005	482227614029	TACT SWITCH,PLAY
S7006	482227614029	TACT SWITCH,PAUSE
S7007	482227614029	TACT SWITCH,STOP/EJECT
S7008	482227614029	TACT SWITCH,DISPLAY
S7009	482227614029	TACT SWITCH,A.DUB
S7010	482227614029	TACT SWITCH,TBC
S7012	482227614029	TACT SWITCH,REC LINK
S7014	482227614029	TACT SWITCH,SPEED
J7191	482226511419	PIN JACK,VIDEO IN
J7192	482226741246	PIN JACK(SW),AUDIO(L)
J7193	482226511421	PIN JACK(SW),AUDIO(R)

CONNECTORS

CN7001	482226511187	FPC CONNECTOR,(1-14)
CN7191	482226511171	FPC CONNECTOR,(3-7)M

10. REC SAFETY BOARD

PRINTED CIRCUIT BOARD

PW2	996500000919	REC SAFETY BOARD ASSY

SWITCH

S7041	482227613989	PUSH SWITCH

FUSE

FW7001	482232012494	PARA RIBON WIRE

11. JACK BOARD ASSEMBLY

CONNECTOR

CN7192	482226710949	FPC CONNECTOR,(1-4)M
J7194	482226511418	S JACK,S IN

12. JOG BOARD ASSEMBLY

PRINTED CIRCUIT BOARDS

PW3	996500000920	JOG BOARD ASSY
UN7091	482227310357	JOG SHUTTLE ASSY

CONNECTOR

CN7005	482226511195	FPC CONNECTOR,(1-6)M

13. LOADING MOTOR

CAPACITOR

C1		F CAPACITOR 0.1µF,50V

OTHERS

OT1	996500000921	#500SPACER0.01,C1

CONNECTOR

CN1	482226511363	CONNECTOR

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Service
Service
Service

Video Cassette Recorder

V12 Chassis

S-VHS Alignment Tapes

The Super VHS VCR was launched in 1999 for V12 chassis on the high end models, the part number of the SVHS Alignment Tape was not available in the Service Manuals, this issue of Service Information is to inform you of the part numbers for the NTSC and PAL models.

SVHS Alignment Tape	12NC	Factory code
NTSC	9965 000 01192	MH-1H
PAL	9965 000 01193	MH-2H

SVHS models, which use these alignment tapes, are;

VR999/50, VR999/55, VR999/61, VR999/75, VR999/77, VR999/78, VR1000/02, VR1000/07, VR1000/39, VR1500/58.

Please amend section 3 under the SVHS Alignment Tape of the above Service Manuals accordingly.

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